Government
Publications

Copy 2

Ontario Legislative Assembly

Sessional papers

SESSIONAL PAPERS.

VOL. XLIV.—PART XII.

FIRST SESSION

OF THE

THIRTEENTH LEGISLATURE

OF THE

PROVINCE OF ONTARIO.

SESSION 1912.

TORONTO:
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1912

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No. 2 — Estimates—Supplementary for the service of the Province for the year ending 31st October, 1912. Presented to the Legislature, 26th February and 28th March, 1912. *Printed.* Estimates for the year ending 31st October, 1913. Presented to the Legislature, 1st April, 1912. *Printed.*

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No. 3 — Report of the Minister of Lands, Forests and Mines for the year 1911. Presented to the Legislature, 9th April, 1912. *Printed.*

No. 4 — Report of the Bureau of Mines, for the year 1911. Presented to the Legislature, 15th March, 1912. *Printed.*

No. 5 — Report of the Inspector of Division Courts, for the year 1911. Presented to the Legislature, 1st March, 1912. *Printed.*

No. 6 — Report of the Inspector of Legal Offices, for the year 1911. Presented to the Legislature, 13th March, 1912. *Printed.*

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No. 7 — Report of the Inspector of Registry Offices, for the year 1911. Presented to the Legislature, 26th March, 1912. *Printed.*

No. 8 — Report of the Provincial Municipal Auditor, for the year 1911. Presented to the Legislature, 11th April, 1912. *Printed.*

No. 9 — Report of the Commissioners for the Queen Victoria Niagara Falls Park, for the year 1911. Presented to the Legislature, 18th March, 1912. *Printed.*

No. 10 — Report of the Inspector of Insurance and Registrar of Friendly Societies, for the year 1911. Presented to the Legislature, 1st March, 1912. *Printed.*

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No. 13 Report of the Game and Fisheries Department, for the year 1911. Presented to the Legislature, 1st March, 1912. *Printed.*

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No. 14 Report on Highway Improvement in the Province, for the year 1911. Presented to the Legislature, 3rd April, 1912. *Printed.*

No. 15 Report of the Bureau of Labour, for the year 1911. Presented to the Legislature, 11th April, 1912. *Printed.*

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No. 16 Report of the Minister of Education, for the year 1911. Presented to the Legislature, 1st March, 1912. *Printed.*

No. 17 Report of the Board of Governors of the University of Toronto, for the year ending 30th June, 1911. Presented to the Legislature, 22nd February, 1912. *Printed.*

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No. 18 Report of the Secretary and Registrar of the Province, for the year 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

No. 19 Report upon the Registration of Births, Marriages and Deaths, for the year 1910-11. Presented to the Legislature, 1st March, 1912. *Printed.*

No. 20 Report of the Provincial Board of Health, for the year 1911. Presented to the Legislature, 1st March, 1912. *Printed.*

No. 21 Report on the Hospitals for the Insane, for the year 1911. Presented to the Legislature, 18th March, 1912. *Printed.*

No. 22 Report on the Hospitals for Idiots and Epileptics, for the year 1911. Presented to the Legislature, 18th March, 1912. *Printed.*

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No. 23 Report upon the Feeble-Minded, for the year 1911. Presented to the Legislature, 26th March, 1912. *Printed.*

No. 24 Report upon the Hospitals and Charities, for the year 1911. Presented to the Legislature, 25th March, 1912. *Printed.*

No. 25 Report upon the Common Gaols and Prisons, for the year 1911. Presented to the Legislature, 18th March, 1912. *Printed.*

No. 26 Report upon Neglected and Dependent Children, for the year 1911. Presented to the Legislature, 22nd March, 1912. *Printed.*

No. 27 Report upon the Operation of the Liquor License Acts, for the year 1911. Presented to the Legislature, 3rd April, 1912. *Printed.*

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No. 28 Report of the Department of Agriculture, for 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

No. 29 Report of the Agricultural College and Agricultural Farm, for the year 1911. Presented to the Legislature, 3rd April, 1912. *Printed.*

No. 30 Report of the Ontario Veterinary College, for the year 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

No. 31 Report of the Ontario Agricultural and Experimental Union, for the year 1911. Presented to the Legislature, 3rd April, 1912. *Printed.*

No. 32 Report of the Fruit Growers' Association of Ontario, for the year 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

No. 33 Report of the Fruit Branch of the Department of Agriculture, for the year 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

No. 34 Report of the Ontario Vegetable Growers' Association, for the year 1911. Presented to the Legislature, 3rd April, 1912. *Printed.*

No. 35 Report of the Corn Growers' Association, for the year 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

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No. 36 Report of the Entomological Society of Ontario, for the year 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

No. 37 Report of the Ontario Bee-Keepers' Association, for the year 1911. Presented to the Legislature, 3rd April, 1912. *Printed.*

No. 38 Report of the Dairymen's Associations of Ontario, for the year 1911. Presented to the Legislature, 3rd April, 1912. *Printed.*

No. 39 Report of the Live Stock Associations of Ontario, for the year 1911. Presented to the Legislature, 22nd February, 1912. *Printed.*

No. 40 Report of the Farmers' Institutes of Ontario, for the year 1911. Presented to the Legislature, 22nd February, 1912. *Printed.*

No. 41 Report of the Women's Institutes of Ontario, for the year 1911. Presented to the Legislature, 22nd February, 1912. *Printed.*

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No. 42 Report of the Horticultural Societies of Ontario, for the year 1911. Presented to the Legislature, 3rd April, 1912. *Printed.*

No. 43 Report of the Agricultural Societies of Ontario, for the year 1911. Presented to the Legislature, 22nd February, 1912. *Printed.*

No. 44 Report of the Bureau of Industries, for the year 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

No. 45 Report of the Inspectors of Factories, for the year 1911. Presented to the Legislature, 2nd April, 1912. *Printed.*

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No. 46 Report of the Temiskaming and Northern Ontario Railway, for the year ending 31st October, 1911. Presented to the Legislature, 22nd February, 1912. *Printed.*

No. 47 Report of the Hydro-Electric Power Commission, for the year 1911. Presented to the Legislature, 11th April, 1912. *Printed.*

No. 48 Report of the Ontario Railway and Municipal Board, for the year 1911. Presented to the Legislature, 11th April, 1912. *Printed.*

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No. 49 Return from the Records of the General Elections in 1911. Presented to the Legislature, 7th February, 1912. *Printed.*

No. 50 Report of the Archivist of Ontario. Presented to the Legislature, 3rd April, 1912. *Printed.*

No. 51 Report on the State of the Legislative Library. Presented to the Legislature, 8th February, 1912. *Not Printed.*

No. 52 Report of the Game and Fisheries Commission, for 1909-11. Presented to the Legislature, 2nd April, 1912. *Printed.*

CONTENTS OF PART XIV.

No. 53 Statements of Provincial Auditor under Audit Acts. Presented to the Legislature, 26th March, 1912. *Printed.*

No. 54 Return to an Address to His Honour the Lieutenant-Governor of the Fourteenth day of February, 1912, praying that he will cause to be laid before this House a Return of copies of—

1. All correspondence which has passed since the 1st day of August, 1908, between the Government of the Province of Ontario or any member thereof or any person on its behalf, and the Government of the Dominion of Canada, or any member thereof or any person on its behalf, in reference to the Boundary between the Provinces of Ontario and Manitoba, through the territory now known as the District of Keewatin.

2. All correspondence which has passed since the 1st day of August, 1908, between the Government of the Province of Ontario or any member thereof or any person on its behalf, and the Government of the Province of Manitoba or any member thereof or any person on its behalf, in reference to the boundary between the Province of Ontario and Manitoba through the territory now known as the District of Keewatin.

3. All other papers in the possession of the Government in reference to the said boundary, including all reports in the possession of the Government in reference to the character and resources of the territory now known as the District of Keewatin. Presented to the Legislature, 20th February, 1912. *Mr. Rowell. Printed for Distribution.*

No. 55 Return to an Order of the House of the Fourteenth day of February, 1912, shewing—

1. What prosecutions have been instituted against parties in Northern Ontario for the illegal sale of liquor in Northern Ontario during the calendar year 1911.

2. The result of such prosecutions.

3. What amount the Government has received during the calendar year 1911 by way of fines imposed for the illegal sale of liquor in Northern Ontario. Presented to the Legislature, 20th February, 1912. *Mr. McDonald. Not Printed.*

No. 56 Copies of Orders-in-Council in accordance with the provisions of s-s. 6 of s. 78 of the Surrogate Courts Act. Presented to the Legislature, 22nd February, 1912. *Not Printed.*

No. 57 Copies of Orders-in-Council and Regulations required by section 27 of the Department of Education Act. Presented to the Legislature, 22nd February, 1912. *Not Printed.*

No. 58 Copy of Questions submitted to the Supreme Court, by the Government of Canada, relative to the *Ne Temere* decree and an Act to amend the Marriage Act. Presented to the Legislature, 27th February, 1912. *Not Printed.*

No. 59 Copy of an Order-in-Council of the Government of Canada, respecting the Boundary Line between Ontario and Manitoba. Presented to the Legislature, 27th February, 1912. *Not Printed.*

No. 60 Report upon Infant Mortality in the Province. (*Not Presented.*)

No. 61 Return to an Order of the House of the 23rd of February, 1912, for a Return of all correspondence from August, 1st, 1911, to date, between the Attorney-General or any official of his Department and any person or persons of the Town of Chesley or elsewhere, respecting the prosecution, conviction and fining of one Charles Subject by Magistrate Montgomery for an infringement of the provisions of the Liquor License Act. Presented to the Legislature, 1st March, 1912. *Mr. McDonald. Not Printed.*

No. 62 Merchant's report on the condition of English-French Schools in the Province. Presented to the Legislature, 6th March, 1912. *Printed for Distribution.*

No. 63 Copy of an Order-in-Council increasing the commutation paid to His Honour A. D. Hardy, Judge of the County Court of Brant. Presented to the Legislature, 13th March, 1912. *Not Printed.*

No. 64 Return to an Order of the House of the Twenty-sixth day of February, 1912, for a Return of copies of: 1. All correspondence between the Government or any member or official thereof or the Temiskaming and Northern Ontario Railway Commission or any member or official thereof and the Grand Trunk Pacific Railway Company or the Grand Trunk Railway or any official of either of them with respect to.

(*a*) The acquisition of running rights over the Temiskaming and Northern Ontario Railway;

(*b*) The leasing, running, or operating of dining, cafe, or buffet cars on the tracks of the Temiskaming and Northern Ontario Railway.

2. All agreements between the Government of Ontario or any department thereof or the Temiskaming and Northern Ontario Railway Commission and any other person or corporation with respect to:

(*a*) The acquisition of running rights over the Temiskaming and Northern Ontario Railway;

(*b*) The leasing, running, or operating of dining, cafe, or buffet cars on the tracks of the Temiskaming and Northern Ontario Railway. Presented to the Legislature, 19th March, 1912. *Mr. Rowell. Not Printed.*

No. 65 Interim Report on Laws, relating to the liability of employers to make compensation to their employees for injuries received in the course of their employment which are in force in other countries and as to how far such laws are found to work satisfactorily. Presented to the Legislature, 29th March, 1912. *Printed.*

No. 66 Agreement made by and between the Kinleith Paper Company, Limited, of the first part, and His Majesty the King, represented by the Honourable the Treasurer, of the second part, conditioned for the supply of printing paper for the use of the Province. Presented to the Legislature, 20th of March, 1912. *Printed.*

No. 67 Agreement made by and between the Montrose Paper Mills, Limited, of the first part and His Majesty the King, represented by the Honourable the Treasurer, of the second part, conditioned for the supply of printing paper for the use of the Province. Presented to the Legislature, 20th March, 1912. *Printed.*

No. 68 Agreement made by and between the Georgetown Coated Paper Mills, Limited, of the first part, and His Majesty the King, represented by the Honourable the Treasurer, of the second part, conditioned for the supply of printing paper for the use of the Province. Presented to the Legislature, 20th March, 1912. *Printed.*

No. 69 Bulletin of the Ontario Hospitals for the Insane in the interests of Psychiatry. Presented to the Legislature, 21st March, 1912. *Printed for Distribution.*

No. 70 Report on James Bay Survey Explorations, Cochrane to James Bay, June 9th to September 12th, 1911. Presented to the Legislature, 21st March, 1912. *Printed for Distribution.*

No. 71 Report of special investigation into the cause of Typhoid Fever in the Town of Sarnia. Presented to the Legislature, 21st March, 1912. *Printed.*

No. 72 A Return to an Order of the House of the 14th February, 1912, for a Return shewing: 1. All complaints received by the Government since the first day of January, 1911, in reference to the participation of any officers, officials or employees of the Government in political contests or taking part in political matters in this Province.

2. All correspondence arising out of or incidental to such complaints.

3. All correspondence passing between the Government or any Department or Member thereof and any officer, officials, or employees of the Government with reference to the participation of such officers, officials or employees in political contests or taking part in political matters in this Province since the first day of January, 1911. Presented to the Legislature, 22nd March, 1912. *Mr. Mageau. Not Printed.*

No. 73 Statement of the distribution of Revised and Sessional Statutes. Presented to the Legislature, 25th March, 1912. *Not Printed.*

No. 74 Return to an Address to His Honour the Lieutenant-Governor of the 14th February, 1912, praying that he will cause to be laid before this House a Return of copies of all correspondence between the Government of the Province of Ontario or any member thereof, or any person on its behalf, and the Government of the Dominion of Canada, or any member thereof, or any person on its behalf, with reference to the construction of permanent highways in the Province or grants to aid in such construction. Presented to the Legislature, 26th March, 1912. *Mr. Ferguson (Kent). Not Printed.*

No. 75 Return to an Order of the House of the 27th February, 1912, showing:—1. How many barrels of apples were produced in each year in each of the 45 Demonstration Orchards instituted by the Government. 2. What was the sale price *per* barrel of the apples from each of the said Demonstration Orchards. 3. What are the names and qualifications of the several orchard demonstrators now in the employ of the Government. Presented to the Legislature, 26th March, 1912. *Mr. Anderson (Bruce). Not Printed.*

No. 76 Return to an Order of the House of the 8th March, 1912, for a Return of copies of all correspondence between any person and the Government or any member thereof with respect to the construction of a Branch of the Temiskaming and Northern Ontario Railway to Elk Lake or further, with memorandum of dates upon which delegations waited upon the Government or any member thereof in support of the construction of the said Branch; also all surveyors' or other reports received by the Government with respect to the feasibility and cost of construction of the said Branch and all other papers or documents bearing upon the question of the construction of the said Branch. Presented to the Legislature, 27th March, 1912. *Mr. Mageau. Not Printed.*

No. 77 Return to an Order of the House of the 23rd February, 1912, for a Return shewing: The names of all persons to whom payments have been made in connection with the present Revision of the Statutes, and the total amount paid to each, and the services or other matter in respect of which such payments were made. Presented to the Legislature, 29th March, 1912. *Mr. Proudfoot. Not Printed.*

No. 78 Return to an Order of the House of the 15th March, 1912, for a Return of copies of all correspondence since the first day of January, 1911, between the Minister of Education, the Deputy-Minister of Education or any Official of the Department of Education and any School Trustee, Board of Trustees, or any person in the Township of Springer, with respect to the character of teaching in the Schools of the said Township, with respect to the teaching of French in the said Schools, with respect to the employment of teachers in the said Schools, or with respect to the giving or withholding of grants from the said Schools or any of them. Presented to the Legislature, 1st April, 1912. *Mr. Marshall. Not Printed.*

No. 79 Return to an Order of the House of the 28th day of February, 1911, for a Return shewing: (*a*) The number of sales of timber limits which have taken place in each year since 1905; (*b*) The location and acreage of each limit sold; and (*c*) The name of the purchaser in each case; (*d*) The price paid per acre, or otherwise, in each case; (*e*) The berth, or area of each berth, which had been under permit previous to the sale, with the original date of the permit; (*f*) The area of each berth damaged by fire previous to the sale; (*g*) The berth, or berths, which were virgin territory; (*h*) The reasons which caused each timber sale to be held from 1905 down to date; (*i*) The number of permits to cut timber current in the season of 1904-5; the number of permits to cut timber current in the season of 1910-11. Presented to the Legislature, 3rd April, 1912. *Mr. MacKay. Not Printed.*

No. 80 Report of Proceedings of the Twelfth Canadian Conference of Charities and Correction. Presented to the Legislature, 10th April, 1912. *Printed for Distribution.*

No. 81 Report of the Sixth Annual Meeting of the Canadian Hospital Association. Presented to the Legislature, 10th April, 1912. *Printed for Distribution.*

No. 82 Return to an Order of the House of the 14th February, 1912, for a Return of copies of all correspondence passing in the years 1905 and 1906 between the Attorney-General or any officer or official of his Department and Mr. J. W. Curry, K.C., Crown Attorney of the City of Toronto, or his successor, with reference to the prosecution of any alleged combines and all briefs, statements or other documents furnished by Mr. Curry to the Attorney-General or any officer or official of his Department with reference to any of the said alleged combines. Presented to the Legislature, 10th April, 1912. *Mr. Elliott. Not Printed.*

No. 83 Return to an Order of the House of the 9th April, 1912, for a Return of copies of (1) All correspondence between the Government or any Minister or Officer thereof and any person, association, board or organization whatsoever, between the 1st day of July, 1911, and the present date; and also (2) All protests, resolutions, objections or written statements of any kind whatsoever received by the Government or any Minister or Officer thereof, between the said dates with respect to: (*a*) The conduct of one S. J. Dempsey, in his official capacity as Police Magistrate or as Crown Lands Agent; (*b*) The participation of the said S. J. Dempsey in the Federal Election contest in South Renfrew; (*c*) The participation of the said S. J. Dempsey in the Provincial Election contests held in December, 1911. Presented to the Legislature, 12th April, 1912. *Mr. McQueen. Not Printed.*

Lake Sesekinika.

TENTH ANNUAL REPORT

OF THE

Temiskaming and Northern Ontario Railway Commission

ONTARIO GOVERNMENT RAILWAY
SIR JAMES PLINY WHITNEY, PREMIER

For Year Ended October 31st

1911

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty
1912.

Printed by
WILLIAM BRIGGS,
29-37 Richmond Street West,
TORONTO

To His Honour Sir John Morison Gibson, K.C.M.G.,
Lieutenant-Governor of Ontario.

May it Please Your Honour:

The undersigned has the honour to present to Your Honour the Tenth Annual Report of the Temiskaming and Northern Ontario Railway Commission for the fiscal year ended October 31st. 1911.

Respectfully submitted,

J. O. REAUME,

Minister of Public Works.

Toronto, February 10th, 1912.

Hon. J. O. Reaume,

Minister of Public Works,

Toronto, Ontario.

Sir,—I have the honour, by direction, to submit to you for presentation to the Legislature the Tenth Annual Report of the Temiskaming and Northern Ontario Railway Commission for the fiscal year ended October 31st, 1911.

I have the honour to be,

Sir,

Your obedient servant,

A. J. McGee,

Secretary-Treasurer.

The Temiskaming and Northern Ontario Railway Commission.

J. L. Englehart.....*Chairman*..... Petrolia.
Denis Murphy.....*Commissioner*..... Ottawa.
Frederick Dane.....*Commissioner and Land Commissioner* .. Toronto.

CHIEF OFFICERS.

A. J. McGee.....*Secretary-Treasurer*.....Toronto.
S. B. Clement.....*Chief Engineer and Supt. of Maintenance* North Bay.
W. A. Griffin.....*Supt. of Traffic*..... North Bay.
H. F. Macdonald.....*Accountant*.....Toronto.
A. J. Parr.....*General Freight and Passenger Agent*... North Bay.
T. Ross.....*Master Mechanic*.....North Bay.
Wm. Young.....*General Roadmaster*..... North Bay.
Geo. W. Lee.....*General Agent*.....North Bay.
W. A. Graham.....*Purchasing Agent and Storekeeper*.....North Bay.
A. R. H. Mitchell.....*Traffic Accountant*..... North Bay.
C. L. Ferguson.....*Paymaster*.....North Bay.
Arthur A. Cole.....*Mining Engineer*..... ..... Cobalt.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

General Remarks

Accounts and statistics for year ended October 31st, 1911, herewith:—
The mileage in operation on October 31st, 1911, was:—

Main Line.

	Miles.	
North Bay to Cochrane	252.8	
		252.8

Branch Lines.

Charlton Branch	7.8	
Kerr Lake Branch	3.9	
Haileybury Spur	1.64	
Porcupine Branch	28.	
		41.34

Yards and Siding.

Yards and Sidings, Main and Branch Lines	84.85	
Liskeard Spur	.64	
		85.49
Total mileage		379.63

Following is the condensed statement of Revenue Account for the year ended October 31st, 1911, compared with the year 1910. The subdivisions of the condensed items given below for year 1911 are shown in detail in the financial part of this report.

	1911	1910
Revenue from Transportation	$1,708,249 02	$1,522,020 05
Revenue other than Transportation	72,715 81	69,831 97
Total Operating Revenue	$1,780,964 83	$1,591,852 02
Operating Expenses	1,181,998 63	1,165,361 36
Net Operating Revenue	$598,966 20	$426,490 66
Ore Royalties	17,060 56	31,762 92
	$616,026 76	$458,253 58
Hire of Equipment, etc.	22,874 07	22,123 27
Total Earnings	$593,152 69	$436,130 31
Paid Treasurer of Ontario	515,000 00	420,000 00

The Operating Expenses amount to 66.4 per cent. of the Gross Earnings, and the Net Earnings to 33.6 per cent., as compared with 73.2 per cent. and 26.8 per cent., respectively, for the twelve months ending October 31st, 1910.

Total of the pay rolls for the year amounted to:—

Operation	$748,522 65
Construction	34,696 24
Total	$783,218 89

Insurance—Fire.

Group 1.—On buildings, including all office permanent fixtures as follows:—

Station Buildings	$158,120 00
Agents' Dwellings	7,920 00
Section Houses	52,665 00
Freight Sheds	39,250 00
Engine Houses	33,290 00
Store Houses	44,005 00
Track Scale	2,720 00
	$337,970 00

On contents of buildings, excluding all office permanent fixtures but including merchandise, as defined under group 8 hereof, movable and office furniture, telegraph instruments, and property of all kinds.

Station Buildings	$28,400 00
Freight Sheds	78,500 00
Store Houses	43,000 00
	$149,900 00

In car and locomotive, machine and boiler shops, painting and erecting shops, engine and boiler houses, and other buildings used for manufacturing.

Buildings, including permanent fixtures and fittings	$39,680 00
Stock manufactured, unmanufactured, and in process of manufacture, materials and supplies	19,000 00
Fixed and movable machinery and machines, engines, boilers, dynamos, motors, patterns (limit on any one pattern or set of patterns, $250.00), tools, implements, utensils and all plant	56,644 44
	$115,324 44

On tanks, supports, pumps, engines, tools, implements, and plant connected therewith, or pertaining thereto	$52,330 00
On bridges, trestles and their approaches	82,116 00
On decks and steel structures	15,760 00
On coal trestles and chutes, piers, pockets, sheds and platforms used for the storing or handling of coal	46,240 00
On platforms	488 00
On decks	960 00
On the coal	19,000 00
	$216,894 00

On rolling stock, covering all that owned by the assured in any engine or car house or repair shop, or otherwise upon the line of the road and its branches, spurs, sidings, and yards with the following limits	$1,303,900 00
On freight in transit, including earned freight earnings	200,000 00
On various buildings and contents distributed over the entire line where the individual liability does not exceed $250.00	12,500 00
On miscellaneous specified insurance covering buildings and contents, not coming under heading of any other group	21,170 00
	$1,537,570 00

Total of entire schedule, $2,357,658.44.

The rate on all the above is fifty cents per hundred dollars and is divided: Twenty-five per cent. with the Mercantile Fire Insurance Company, thirty-five per cent. with the London and Lancashire Fire Insurance Company, twenty per cent. with the General Fire Assurance Corporation, fifteen per cent. with the Norwich Union Fire Insurance Society; five per cent. with the Union Assurance Society who took over the risk of the Richmond and Drummond Fire Insurance Company.

In addition to above, $174,829.00 is in force on dwellings, office building and contents situated in North Bay and Toronto, also ties, construction camps, etc., upon which tariff rates prevail.

Effective December 13th, 1911, Mr. W. A. Graham, Storekeeper, was appointed Purchasing Agent and Storekeeper.

J. H. Black, Superintendent, having tendered his resignation, to enter into other business, accepted with regrets—effective August 1st, 1911.

On the resignation of the Superintendent, reorganization of the office was effected, the duties divided, creating two positions—Superintendent of Maintenance, and Superintendent of Traffic.

Effective August 1st, 1911.

Mr. S. B. Clement, Chief Engineer, was appointed Chief Engineer and Superintendent of Maintenance, with jurisdiction over Engineering, Maintenance of Way, and Motive Power Departments.

Mr. W. A. Griffin, Traffic Accountant, in addition to present duties, was appointed Superintendent of Traffic, with jurisdiction over Despatchers, Station Agents, Operators, Trainmen, Enginemen, and other matters pertaining to transportation.

Mr. A. J. Parr, heretofore Freight and Passenger Agent, was appointed General Freight and Passenger Agent.

Mr. H. F. Macdonald, heretofore Acting Accountant, was appointed Accountant.

During the year negotiations were concluded, and new agreements entered into, as follows, covering rates of wages:—

Conductors, Brakemen, Baggagemen, effective October 1st, 1910.

Engineers and Firemen, effective January 1st, 1911.

Station Agents, Operators, and Despatchers, effective April 1st, 1911.

Maintenance of Way Employees, effective June 1st, 1911.

Car Department Employees, and Machinists, effective September 1st, 1911.

The wage covered by these agreements are equal in their respective class to the highest paid by any railway in Canada.

Earnings.

The net earnings represent 33.6 per cent. as compared with 26.8 per cent. for 1911—an increase of $189,112.81, due largely to the opening of the Porcupine Gold Camp, although the opening of the rich Clay Belt and increased agricultural operations are becoming of importance.

Expenses.

Operating expenses represent 66.4 per cent. of the gross earnings, and show an increase of $16,637.27, due to increased expense of handling traffic, maintenance of locomotives and freight cars, being the largest factors.

Mines, Minerals and Power.

Attention is directed to the Mining Engineer's Report, inculcated herein, which is for the calendar year ending December 31st, 1911.

Surveys.

See Chief Engineer's Report. During year surveys have been continued notably:—

Exploration trip to James Bay by S. C. Ells.
Diversion between North Bay—Riddle, M.P. 1-34.
Grade Reduction, North Bay—Liskeard, M.P. 1-113.
Elk Lake—Gowganda—Porcupine—Sudbury Surveys.
Sault Ste. Marie Surveys.

The reports of S. C. Ells on the James Bay Surveys and Geological Report of J. G. McMillan, along the line of the Porcupine—Gowganda survey, are also published separately.

Agriculture.

The back bone of "The Northland—the Land of Temiskaming," the continued and increased efforts of Land Commissioner F. Dane and General Agent G. W. Lee, the interest aroused by the Board of Trade of the City of Toronto, and the affiliated Boards of Trade of Ontario, the excursion of the Toronto Board of Trade in June, 1911, the visit of the district representatives, the expert agriculturists, the reclaimers of land, of that great Department of Agriculture of the Province of Ontario, has aroused an interest that the results will speak for themselves.

Demonstration Car.

A special car fitted up with the object of exhibiting the resources of the Northland, in co-operation with the Department of Agriculture, has been sent through the parts of the Province from east to west, the north and south, the many letters, and newspaper reports expressing satisfaction: the many enquiries from prospective settlers amply demonstrating the successs of the efforts in bringing before the people what their own Province can do, and has in store for the Husbandman who

comes to the Greater Northland—the future Home of Countless Thousands.

We have pleasure in directing attention to the report of Messrs. Edwards, Morgan & Co., Chartered Accountants, with reference to the accounts.

TORONTO, CANADA, Feb. 8th, 1912

J. L. ENGLEHART, ESQ.,

Chairman, Temiskaming & Northern Ontario Railway Commission,

Toronto, Ontario.

DEAR SIR:—Under instructions from the Commissioners we have audited the Accounts of the Commission having reference to the Cash Receipts and Disbursements, Accounts Collectible, Accounts Payable, Agents' and Conductors' Accounts, Foreign Tickets, Foreign Freights, Car Mileage Accounts and Bank Balances. Our examination has covered the period from the 1st of November, 1909, to the 31st October, 1911.

We certify that all transactions relating thereto have been properly vouched and that the Cash and Bank Balances have been duly accounted for. We have verified the balances of Accounts outstanding and have ascertained that they correspond with the General Ledger Accounts.

The Accounting System is adequate and is in our opinion thoroughly and effectively administered. We are,

Yours faithfully,

(sgd.) EDWARDS, MORGAN & CO.

COUNSEL'S REPORT—D. E. THOMSON, K.C.

Litigation.

At the close of the financial year, there were no actions pending with the Commission as plaintiff, and only the following in which it is defendant:—

(*a*) *Macdonell* v. *T. & N. O.* Settlement negotiated but not yet carried out.

(*b*) *McRae, Chandler & McNeil, and Edwards* v. *T. & N. O.* Settlement negotiated but matter not completely closed at the end of the year.

(*c*) *Lefebvre* v. *T. & N. O.* Claim for damages for accidental death of employee—settlement effected; action only rendered necessary because infants were interested and settlement required approval of the Court.

(*d*) *Toronto General Trusts Corporation, Administrator, C. C. Forsythe* v. *T. & N. O.* Similar action; settlement arranged subject to approval of the Court.

(*e*) *Cobalt Lake Mining Company.* Arbitration pending to determine compensation, if any, to which the Mining Company is entitled by reason of extension of Cobalt Station grounds and partial filling of Cobalt Lake.

Canadian Construction Company.—Contract.

Matter amicably settled and discharge signed.

Accident Claims.

A number of other claims by employees and other parties have arisen during the year, but have all been settled without litigation.

Damage Claims.

There have been the usual number of claims in respect of freight, etc., lost, destroyed, delayed, misdelivered, or damaged. Some claims have been adjusted, some abandoned, and others pending, at the end of the year. No suits.

Nipissing Junction Connection.

Agreement was consummated during the year with the Grand Trunk Railway Company for building of this connection and the leasing of same to the Grand Trunk.

Grand Trunk Running Rights.

Negotiations have been in progress all year to settle terms of running rights agreement with the Grand Trunk Railway Company and express agreement with the Canadian Express Company. Some details were still outstanding for adjustment at the close of the year.

Nipissing Central Railway Company.

Adjustment of relations between Commission and this Company, whose stock has been acquired, still under consideration.

Mining Leases.

New leases with rental on proposed new scale based on net profits, have been executed with some of the mining Lessees. In cases of some of the other Lessees, negotiations are still pending.

Chrysanthemums—Englehart Greenhouse.

REPORT OF CHIEF ENGINEER AND SUPERINTENDENT OF MAINTENANCE.

For Year ending October 31st, 1911.

North Bay Terminals.

The Grand Trunk Railway having no terminal facilities in North Bay has made use, in the past, of the C. P. R. North Bay terminals, but on December 3rd, 1911, it will withdraw from the C. P. R., and will make use of the T. & N. O. Railway terminals. This will greatly increase the traffic in our terminals, and it has been necessary to considerably enlarge our North Bay Yard. The work in connection therewith, is now in progress, but by December 3rd, will be sufficiently completed to accommodate the Grand Trunk Railway.

The following are under construction:

(*a*) Extension of Nipissing Junction Spur line, through the yard to T. & N. O. junction with the C. P. R.

(*b*) Local freight and transfer yard—Regina Street.

(*c*) Stock yards—12 pens and feed barn, with necessary platforms, water supply, drainage, etc.

(*d*) 5,000 ton Ice House.

(*e*) Yard Office and Kit House.

(*f*) Coach and Rip Tracks, remodelled and extended.

Nipissing Junction Spur.

In 1906 the Commission purchased the right of way for a spur line, from the east end of the North Bay Junction Yards to Nipissing Junction. This right of way is 99 ft. wide and parallels the right of way of the C. P. R. The contract for the grading of this spur line was awarded to P. O'Donnell, North Bay, and work was commenced in June, 1911. The length of the spur from the east switch of the North Bay Junction Yard to the diamond crossing of the C. P. R. at Nipissing Junction is 2.1 miles. At the close of the year, the contractor had completed the grading and our Road Department had laid steel to Nipissing Junction and ballasting was in progress. The spur is laid with 80 lb. A. S. C. E. sect. steel, with 24 in. continuous rail joints.

The Grand Trunk Railway will extend its northern division across the C. P. R. at Nipissing Junction by means of a diamond crossing, and will connect with the spur line. The Grand Trunk has leased the spur line, and on and after December 3rd, 1911, all Grand Trunk Railway traffic now making use of the C. P. R. from Nipissing Junction to North Bay will be diverted to the spur, entering our North Bay yard, which the Grand Trunk will use jointly with the T. & N. O. Railway.

The following statement includes all the work completed on the Nipissing Junction Spur during the year:

Clearing, 24.5 acres.
Grubbing, 8.56 acres.
Solid Rock Excavation, 8,420 cu. yds.
Loose Rock Excavation, 1,584 cu. yds.
Earth Excavation, 24,632 cu. yds.
Cedar Culverts, 6,000 ft. B.M.
Concrete, 165.26 cu. yds.
Culverts: 4 30 in. Corrugated Pipes—177 lin. ft.; 1 24 in. Corrugated Pipe—32 lin. ft.
Ballasting (incomplete), 7,330 cu. yds.
Tracklaying, 2.1 miles.
Fencing, 640 rods.

Station Buildings.

In addition to the smaller passenger stations and freight sheds built by company forces and referred to in the Bridge and Building Master's report, the following have been built by contract:

Thornloe—Robertson, Henderson & Hughes, Contractors.

Frame station 25 ft. x 44 ft. 3 in., on concrete foundations, contains:
General Waiting Room.
Baggage Room.
Office.
Five Living Rooms for Agent.
and is hot water heated throughout.

Matheson—Haileybury Construction Co., Contractors.

Stone station, concrete foundations, 34 ft. 2 in. by 59 ft. 8 in. contains:—
General Waiting Room.
Baggage Room.
Toilet Rooms.
Office.
Four Rooms for Agent.
Hot water heated. This station will not be completed until the new year. It will be a very pretty station, of neat design.

Iroquois Falls Junction—Snyder, Contractor.

Frame station on concrete foundations, size 30 ft. by 67 ft. 8 in., containing:—
General Waiting Room.
Ladies' Waiting Room.
Office.
Toilet Rooms.
Baggage Room.
Six Living Rooms Upstairs.
Hot water heated throughout.

Porcupine Branch.

Preliminary surveys into Porcupine had been made early in the year 1910. The following extract from the Chief Engineer's Annual Report for that year indicates the extent of the surveys:—

"Preliminary surveys were made for a branch line into Porcupine Mining District. The area represented by a triangle, the base of which is the operated line between Matheson and Nellie Lake, and the apex, the township of Tisdale, was carefully explored and trial lines were run wherever necessary to determine the topographical features of the country. The branch line was not located, but the preliminary surveys showed that the best location as regards length, grades and capital cost would be from a point on the main line near M.P. 225."

After the completion of these surveys, a syndicate whose interests were subsequently taken over by E. A. Wallberg undertook the construction of a railway

from the main line of the T. & N. O. Railway, near M.P. 224½, to the Mattagami River. The progress made was very slow, and at the end of November, 1910, less than one mile of right of way had been cleared, and one clay cut opened.

On Novembr 30th, 1910, instructions were received from the Commission to immediately place under construction a branch from Iroquois Falls to Porcupine. By December 3rd a survey party had been placed in the field and the location was in progress. In order that a final location profile might be available at the earliest possible date a second party was added, to proceed with the location on the westerly end of the branch.

After the Commission had decided to build a branch to Porcupine, Mr. Wallberg discontinued work on his railway, and on December 7th the Commission's representatives entered into an agreement with Mr. Wallberg, by which the Commission was to take over all of his work, paying him therefor at a fair valuation. The point from which Mr. Wallberg had started his railway was that which the Commission's surveys had indicated as being the best starting point. Except for that portion of the line already under construction, the location adopted by Mr. Wallberg was abandoned, and an improved location was made.

The Commission desired to have the Branch in operation as far as Porcupine Lake by July 1st, 1911, and in order to insure this, it was decided to build the railway by day labor, under the direction of the Chief Engineer. Mr. J. M. Bourke was appointed Superintendent of Construction and Mr. W. R. Keys, Division Engineer. In order that the Commission's programme might be carried out it was necessary that all the grading and tracklaying as far as Porcupine should be completed by the first of June to enable the track to be given a lift of ballast before July 1st. In rock or heavy clay cuttings grading can be carried on fairly economically during severe winter weather but with very light grading, where it is necessary to shovel snow from the roadbed and borrow ditches, and material to be excavated is solidly frozen, the cost of doing this class of work in winter is excessive. The grading on the Porcupine Branch between Iroquois Falls and Porcupine was almost altogether of this latter class and the difficulty and cost were comparatively excessive. The total depth of snow during the winter this work was done, was about 50 in. to 52 in., and for many miles it was necessary to work in this depth of snow when clearing the right of way and then shovel it off the grade.

Tracklaying was started in February, and was laid as fast as the grading was completed. On April 25th, track was laid to the Frederickhouse River, Mileage 10½, and a temporary freight and passenger service was maintained by the construction department between Kelso and the Frederickhouse. This was of great assistance to the public, as they gained convenient access to Porcupine, via, the Frederickhouse River and Night Hawk Lake. On May 18th, steel was laid to the Porcupine River, M.P. 17.7 and on June 7th to Porcupine (Golden City), M.P. 24.1 and on June 16th to South Porcupine, M.P. 26.7. Although the branch was not formally open for traffic and a regular train service inaugurated until July 1st, the Construction Department in the meantime carried freight and passengers on work trains from the end of steel. There was plenty of good ballast available along the branch—two excellent pits were opened, one at Barber's Bay, M.P. 9¼, and another at M.P. 14½. The ballast was kept well up with the steel and when the regular service was opened on July 1st, the branch was fairly well ballasted, as far as Porcupine, at which point freight sidings and a freight and passenger station were ready for service. When the location surveys were started it was very difficult to forecast what direction the development of the mining camp would take. It

was the desire of the Commission to so locate the branch as to serve the widest interests in Porcupine. Several communities had been established on the shores of Porcupine Lake, and there were several centres of mining activity in the camp. It was impossible to delay the location to await the development of the camp, so it was decided that under the circumstances, a location along the south-eastern side of Porcupine Lake, with a terminus in the vicinity of Lot 3, Con. 2, Township of Tisdale would be most convenient to give the best accommodation to all concerned. After this location had been adopted, the subsequent development of the mines in the Pearl Lake District, indicated that it was advisable to extend the branch, and in May 1911, it was decided to extend it via. Pearl Lake to a terminus in Lot 12, Con. 2, Tisdale. The grading on this extension is much heavier than between Porcupine and Iroquois Falls. In the former there are no rock cuttings on the first portion of the line, but near Pearl Lake there are three large rock cuts, that require several months to take out. The total length of the branch as finally located is 33.66 miles. On October 31st, track had been laid and ballasted, as far as graded—a total distance of 31 miles, to Lot 8, Con 2, Tisdale. The grading on the remaining 2.66 miles will be completed about the middle of December, and track will be laid to the terminus in the Townsite of Timmins, early in 1912.

During May, June and July, 1911, the Porcupine camps suffered from a series of disastrous fires. The first of these on May 19th, destroyed the buildings on the Hollinger Mines, the last and most disastrous was the fire on July 11th. On that date, fire swept practically all of Concessions 1 and 2 of the Tps. Tisdale, and Whitney and the Northern concessions of Deloro and Shaw. The communities of Aura Lake, South Porcupine and Pottsville were entirely destroyed; also the outlying portions of Golden City. All the buildings in connection with nearly every mine in the above area were destroyed. The total loss of life was over 70. The T. & N. O. Railway loss was very heavy, including four of the construction camps with large quantities of construction supplies, plant and rolling stock, but very fortunately none of the railway employees were injured and the station and freight shed at Porcupine, with all the revenue freight in the yard, was saved. The fire destroyed the telegraph line and a number of timber culverts, but these were immediately repaired and the railway and telegraph connection was re-established the morning after the fire. Besides the actual fire loss, the Commission was at great expense relieving the survivors, carrying them out of the camp and bringing in relief supplies. The fire loss of the Construction Department delayed the completion of the Pearl Lake extension by about one month.

Badly crippled by the fire, and a lack of necessary siding and freight shed accommodation at Porcupine and South Porcupine, the Railway was in poor condition to handle the flood of freight that followed the fire. For several weeks, the forces of the Construction Department were concentrated in providing facilities at Porcupine and South Porcupine. By this means, the freight and passenger traffic was handled without reasonable delay or congestion.

The information with reference to the branch, contained in the following statements will be of interest.

Trial and Location.

Length of line located ..... 33.66 miles
Maximum Grade ..... 1% W. and 1.25 E.,—
This latter may readily be reduced to 1%.

Rise.....479.9 feet. Fall.....408.1 feet.

Total Curvature:

1 6	2 6	3 6	4 6	5 6	6 6	7 6	Total.
63 44'	51 15	445 13'	71 43	120 17'	367 57	105 40'	1,325 51'

Degrees of Curvature per mile ..... 39 24'
Max. Degree of Curvature 7

T. & N. O. Ry. Sidings—Porcupine Branch.

Location.	Description.	Length.
		feet
Kilburn—M.P. 2.63	Through.....	1,178
Connaught—M.P. 10.0.....	"	1,315
Keys—M.P. 17.....	"	1,003
Porcupine—M.P. 24.05	"	1,883
	Stub	788
	Freight (Stub)	1,029
	Stub	1,241
	Stub	812
South Porcupine. M.P. 26.66	Through.....	2,028
	Freight shed (Stub)	942
	Stub	600
	Stub	1,160
	Stub	520
	Total.....	14,499 ft.

Private Sidings—Porcupine Branch.

Location.	Description.	Length.
		Feet.
M.P. 21.37.....	Three Nations. (Stub)	334
M.P. 23.75.....	Knight Bros. & McKinnon. (Stub)	1,604
Porcupine	Milne & Son. (Stub)	321
South Porcupine	Reamsbottom & Edwards.....	818
" "	Knight Bros. & McKinnon. (Stub)	459
M.P. 28.18.....	Dome Spur.....	7,870
" "	" Siding	1,011
M.P. 28.83.....	" Extension	472
M.P. 28.23.....	Wallberg	470
M.P. 28.12.....	MacIntyre	400
Total.....		13,759

List of Buildings—Porcupine Branch.

Location.	Description.
Iroquois Falls Junction	Station and Temporary Water Tank.
Porcupine	Station and Freight Shed.
South Porcupine	Station and Freight Shed—Engine House and Water Tank.
Schumacher	Station to build as soon as track laid.
Timmins	" " "

1. Wabi Bridge.
2. Landing-place, Twin Falls, Alberta River.
3. Commissioner Murphy and Officials.
4. On the Porcupine—Chairman and Officials.

Grade Reduction—North Bay to New Liskeard.

The mainline of the T & N. O. Railway between North Bay and Cochrane is a natural connecting link, between the Grand Trunk Railway of Eastern Canada and Grand Trunk Pacific Railway of Northern Ontario and Western Canada. That this is so, is manifested by the fact that the G. T. R. is now negotiating with the Commission for the privilege of routing its through, passenger and freight traffic to and from the G. T. P. Railway via the T. & N. O. Railway.

That section of the T. & N. O Railway between North Bay and New Liskeard was located as a colonization railway and placed under construction before the National Transcontinental was projected. Later when N. T. C. Railway was decided upon, it became apparent that if the T. & N. O. Railway were to be extended from New Liskeard to a connection with the N. T. C. Railway it would receive from the latter a large volume of traffic in addition to what would be developed with the growth of the country, opened by the T. & N. O. Railway itself. The maximum grades on this new N. T. C. Railway were understood to be 0.4 per cent. against eastbound and 0.5 per cent. against westbound traffic, with all grades fully compensated for curvature, the sharpest curves being 4°. The same standards of grades and alignment were adopted by the Commission for the extension of the T. & N. O. Railway from New Liskeard to the Transcontinental Railway. As actually located, however, the maximum grades on the National Transcontinental Railway are 0.6 per cent against westbound traffic, instead of 0.5 per cent. The maximum grade on the T. & N. O. Railway between New Liskeard and Cochrane is therefore slightly less than the maximum grade against westbound traffic on the National Transcontinental Railway.

Uniform and definite maximum grades do not appear to have been adopted or rigidly adhered to at the time of the location and construction of the section between North Bay and New Liskeard. In general, grades in both directions up to 1 per cent. not compensated for curvature, were freely used on all portions of this section while 1.25 per cent. grades not compensated were used in several places between North Bay and the summit in Merrick Township at M.P. No. 23. The ruling grades over the first division therefore, are equivalent to 1.2 per cent. South Bound, and 1.45 per cent. North Bound when compensated for curvature, curvature as sharp as 6° having been freely used on maximum grades.

The difference between the physical characteristics of the two sections of the Railway is strikingly shown in the following table.

	North Bay to New Liskeard.	New Liskeard to Cochrane.
Distance	112.6 miles	140.0 miles
Ruling Gradient—North Bound	1.45 %	0.5 %
South Bound	1.2 %	0.4 %
Maximum Curvature	6°	4°
Curvature per mile	83°18'	27°56'
Tonnage Rating (10 wheel class)—		
North	560 tons	1,460 tons
South	700 tons	1,710 "
Maximum Tonnage Rating (New Consolidation Class)—		
North	1,070 tons	2,700 "
South	1,290 "	3,160 "

A very large proportion of the operating expenses necessary to handle a given traffic varies directly as the number of trains it is necessary to operate. Any increase in the trainload, whether resulting from a reduction in the ruling grade or an increase in the power of the locomotives, will reduce the train mileage, and proportionately decrease the operating expenses. In general, it has been well established that capital expenditures on grade reduction are economically justifiable and to be recommended, whenever the resulting reduction in operating expenses is greater than the interests on the capital expenditure.

During the year a series of surveys was completed that had been carried on intermittently since 1906, to determine to what extent it was practicable to reduce the excessive grades between North Bay and New Liskeard. The shorter and lighter of these grades can be reduced without changing the alignment while the longer and heavier can only be eliminated by rebuilding on a new location, in some cases, at a considerable distance from present right of way. Wherever these diversions have been necessary actual locations have been made and estimates of cost prepared.

The most striking feature of the accompanying profile of the T. & N. O. Railway is what is locally known as the "Merrick Summit," just north of North Bay. The elevation of the North Bay yards at the C. P. R. Junction is 652 ft. above sea level and from Riddle north for 25 miles, the general elevation of the country is approximately 1,000 ft. above sea level. The intervening "Merrick Summit," with an elevation of 1,300 ft. above sea level, is the most serious obstacle to be overcome. In the original location, this summit was crossed by deflecting several miles to the east from North Bay, following the rugged shores of Four Mile Creek, and the North River to the summit. After an exhausted examination of the country on both sides of the right of way, it was found that a lower grade from North Bay could be obtained by following Duchesnay Creek and the summit could be crossed at an elevation of about 1,170 ft. or about 130 ft. lower than the present summit, connecting with the present line at M.P. No. 35, just north of Riddle. If at all possible, it is desirable, that the ruling grades on the first division should not exceed those on the second division, but it is a physical impossibility to obtain an 0.5 per cent. grade north from North Bay. This diversion, North Bay to Riddle, has been located with maximum curvature of 4°, and with maximum grades of 0.8 per cent northbound and 0.6 per cent. southbound, all compensated for curvature. The cost of construction will not be excessive. The diversion gives the lowest grade that can be obtained from North Bay without swinging the line far to the west to the Sturgeon River Valley. With this diversion as a key to the situation it will be unprofitable to attempt to lower the grades between Riddle and Liskeard below 0.8 per cent. northbound and 0.6 per cent. southbound.

Having adopted these ruling grades, every grade in excess of them, between North Bay and New Liskeard, was carefully examined. It will not be necessary to reduce a number of the shorter of these grades as they may be operated as momentum grades. The reduction of the grade between New Liskeard and Cobalt from 1 per cent. to 0.6 per cent. can only be accomplished by a diversion that would pass at a considerable distance from the present station grounds, at Haileybury and New Liskeard. For this reason, it is advisable, for the present, to overcome this grade by means of a helper engine service.

The following summary statements show the proposed method of reducing all grades between North Bay and New Liskeard to a maximum of 0.8 per cent. northbound and 0.6 per cent. southbound:—

TABLE SHOWING REDUCTION OF GRADES—NORTH BAY TO NEW LISKEARD.

Location, mile to mile.		Method of Reducing Grade.	Estimated Cost.
2.	35.	Diversion	$1,482,500
40.	41.2	Train filling	50,120
47.9	48.5	"	25,610
51.7	52.5	"	11,000
57.8	59.	"	39,100
60.4	61.8	"	33,280
62.5	63.3	"	9,200
66.7	73.2	Diversion	367,675
74.5	75.3	Train filling	16,225
90.	94.	Diversion	220,000
100.	100.5	Train filling	8,400
101.	112.	Helper Engine Service	
		Total	$2,263,110

The total length of the North Bay-Riddle Diversion will be thirty miles, replacing thirty-three miles of present line. The curvature on diversion average 71°, and on the present line 93° per mile.

The total rise and fall is as follows:

	Rise.	Fall.
Present main line	747	374
Diversion	634	258

James Bay Surveys.

During the summer of 1911, a small party in charge of S. C. Ells, B.A., B.Sc., was engaged in an exploratory survey of the country between Cochrane and James Bay and instrumental surveys of the estuaries of the Moose and Hurricanaw Rivers. The results of these surveys and the valuable information collected by Mr. Ells from personal observation and from a review of previous exploratory work are incorporated in Mr. Ells' report of October 14th, 1911, which is printed elsewhere in this report.

The Northern Ontario "Clay Belt" extends westward from the inter-provincial boundary for a distance of approximately 350 miles. The average width of this "belt" north and south is about 150 miles. The "Clay Belt" in general is a plateau at an elevation of 800 ft. to 1,000 ft. above sea level, and well drained by the numerous streams that deeply dissect it. The National Transcontinental Railway passes approximately through the centre of it and the construction of the T. & N. O. Railway and the T. C. R. has made us fairly well acquainted with the southern half of the "Belt" in which there has been sufficient agricultural development to prove the fertility of the soil and the possibility of producing excellent and varied field crops. We are not so well acquainted with that portion of the clay belt north of the T. C. Railway, but there is no reason to believe it to be less fertile or otherwise inferior to the clay land, along the T. & N. O. south of Cochrane.

Immediately north of this clay plateau, Mr. Ells located what he refers to as the "transition belt," between the plateau and the James Bay Coastal Plain. In

this "transition belt" are considerable areas of waste land, largely consisting of sand and gravel ridges. Between the "transition belt" and James Bay, lies the James Bay Coastal Plain. This Coastal Plain extends for approximately 75 miles, south and at least 100 miles east from James Bay. The subsoil is clay and is overlaid by varying depths of moss and muskeg. On a large proportion, of the area, the depth of the moss is not sufficient to prohibit agriculture. At Moose Factory the primitive attempts at agriculture prove the fertility of the clay-soil.

Mr. Ells' surveys of the estuaries of the Moose and Hurricanaw Rivers are the first accurate instrumental surveys that have ever been made. The mouth of the Moose River affords the best, if not the only possible site for a harbor, on the south or west coasts of James Bay. And from the information available, it is the best site for a harbor between the Nelson River and the Quebec boundary. The plan of the estuary of the Moose River, accompanying Mr. Ells' report, shows that there is 6 ft. of water over the outer bar at mean low tide and that the depth of water in the bay outside the bar increases with exceptional uniformity. With the equipment at hand it was impossible to accurately locate soundings in the bay outside of the outer bar. It is evident that the proper location for a Railway terminal and docks, is on "Ships' Sands Island" alongside the deep pool, known as the "Ships' Hole." Before this can be made a tide water terminal, it will be necessary to dredge a channel from "Ships' Hole" through the outer bar to the deep water in the bay. The depth and cost of this channel will depend upon the class of shipping to be accommodated. A channel with satisfactory alignment and width varying from three hundred to five hundred feet, as may be necessary, giving a depth of seventeen feet at low tide and twenty-three feet at high tide, will require approximately 4,600,000 cu. yds. of clay excavation. The accessibility of site operations, the character of material to be handled and the weather conditions are the important features governing the cost of dredging operations. Apart from the initial cost of assembling the necessary dredging plant, the cost of operations should not exceed the ordinary cost of dredging similiar material under similiar conditions elsewhere. Considering the importance of the undertaking the cost of establishing a harbor at the mouth of the Moose River will not be prohibitive.

As Moose Factory is much closer to the important commercial and agricultural centres of the province than any other possible harbor on James or Hudson Bay, a considerable greater expenditure, will be justified than at the more distant harbors, as the additional cost of the longer railway connection will be avoided. The following tables give the approximate distances via the best railway routes:—

Toronto to Fort Nelson (via Cochrane)	1,275 Miles
Toronto to Moose Factory (via Cochrane)	645 "
Cochrane to Fort Nelson	805 "
Cochrane to Moose Factory	175 "

The best route for an extension of the T. & N. O. Railway north from Cochrane, cannot be determined without further surveys. In locating any extension, consideration must be given to:

1. Cost of Construction.
2. Grade and Alignment.
3. Future development of the Agricultural mineral and other resources.
4. The ultimate extension to a harbor on James Bay.

The territory drained by the Abitibi, Mettagami and Missinaibi Rivers, will be the first to be settled. The valuable water powers on these streams, will become the "Nuclei" of future settlements. As nearly as can be determined, from the information at present available, the best route for an extension will be via the valley of the Abitibi River to the Moose River, crossing the latter a short distance above the confluence with the Abitibi, in order to reach the site for a harbor, on the west bank of the Moose River, some distance below Revillon's Trading Post. It will not be advisable to keep too close to the river, as the clay banks are high and badly dissected by the tributary streams. The cost per mile of constructing a railway with easy grades and alignment will be moderate.

The Algoma Central Railway is now being extended from "Hobon" on the C. P. R. to "Grant" on the N. T. C., 135 miles west from Cochrane. In adopting this route, the Algoma Central no doubt, had in view, the possibility of a further extension to Moose Factory via the Missinaibi River. An extension of the T. & N. O. Railway cannot be located to serve both the Abitibi and Missinaibi Valleys and it is natural to expect that future development of the country north of the N. T. C. may demand the extension of both the Algoma Central and the T. & N. O. Railways.

A harbor reservation comprising the islands in the Moose River and strips of land two miles wide on each side of the river, from the Fishing Tent Rapids, to James Bay should be made at once. Within this reservation, the Hudson Bay Company and Revillon Freres now have certain rights that it will be necessary to recognize and protect. This reservation will be sufficient to include a harbor and townsite, both of which would probably be located on the west bank of the river. The reservation may not appear particularly valuable at present but undoubtedly in the future there will be the development of a terminal on the Moose River and it is advisable to prevent private corporations from obtaining control of the entire harbor.

That large area of our province, known as the "Coastal Plain" has long rested under a cloud. This Coastal Plain comprises a very considerable fraction of the area of the province and as the boundary of the province undoubtedly will be extended to the North-west, the Coastal Plain will in future comprise a much larger fraction of the area of Ontario. As Mr. Ellis has pointed out in his report, the location of all the better agricultural land in the north-west will soon be complete, and there will be a greater tendency for emigration towards Northern Ontario. The Coastal Plain to-day is practically in the position that the "Clay Belt" was 10 years ago. The Clay Belt then was regarded as almost a myth, but its resources have now been proven. It is true that at present there is no development along the shores of James and Hudson Bays, but with a shore line of over 800 miles east and 1,200 miles west from Moose Factory, the possibilities of future traffic are very great. It is known that the Huronian formations on the east and west sides of the James and Hudson Bays probably carry valuable minerals and are considered to offer very attractive fields for prospecting. Iron deposits on the east coast and copper on the west are known to exist and have attracted considerable attention. Hudson Strait is open for but three months of the year but Hudson Bay and James Bay themselves can be navigated for at least 5 or 6 months or more of the year.

If there is any probability of an extension of the T. & N. O. Railway north from Cochrane, it is advisable to continue the collection of information concerning this country. Information that may be collected at very little expense, will be invaluable in the future in directing the development of the country and it will

prevent the making of many mistakes that undoubtedly would occur should the Commmission ever be hurriedly forced to make any extension to the railway without having time to make complete preparatory surveys:

The following is advisable:—

(1) The establishment of fully equipped meteorological stations at New Post on the Abitibi, Moose Factory and Fort Albany.

(2) An accurate hydrographic survey of the approach to the estuary of the Moose River and the continuation of the surveys made last summer. It is impracticable to take soundings outside the outer bar, without a vessel fully equipped for hydrographic surveys. These hydrographic surveys should include an examination of the shore currents, recording of tides, etc.

(3) An investigation of the effects of spring floods, ice jams, etc., between Moose Factory and the outer bar. This can best be done by sending an Engineer over the land from Cochrane before the spring break-up.

(4) The establishment of a small agricultural experimental station, within the Coastal Plain.

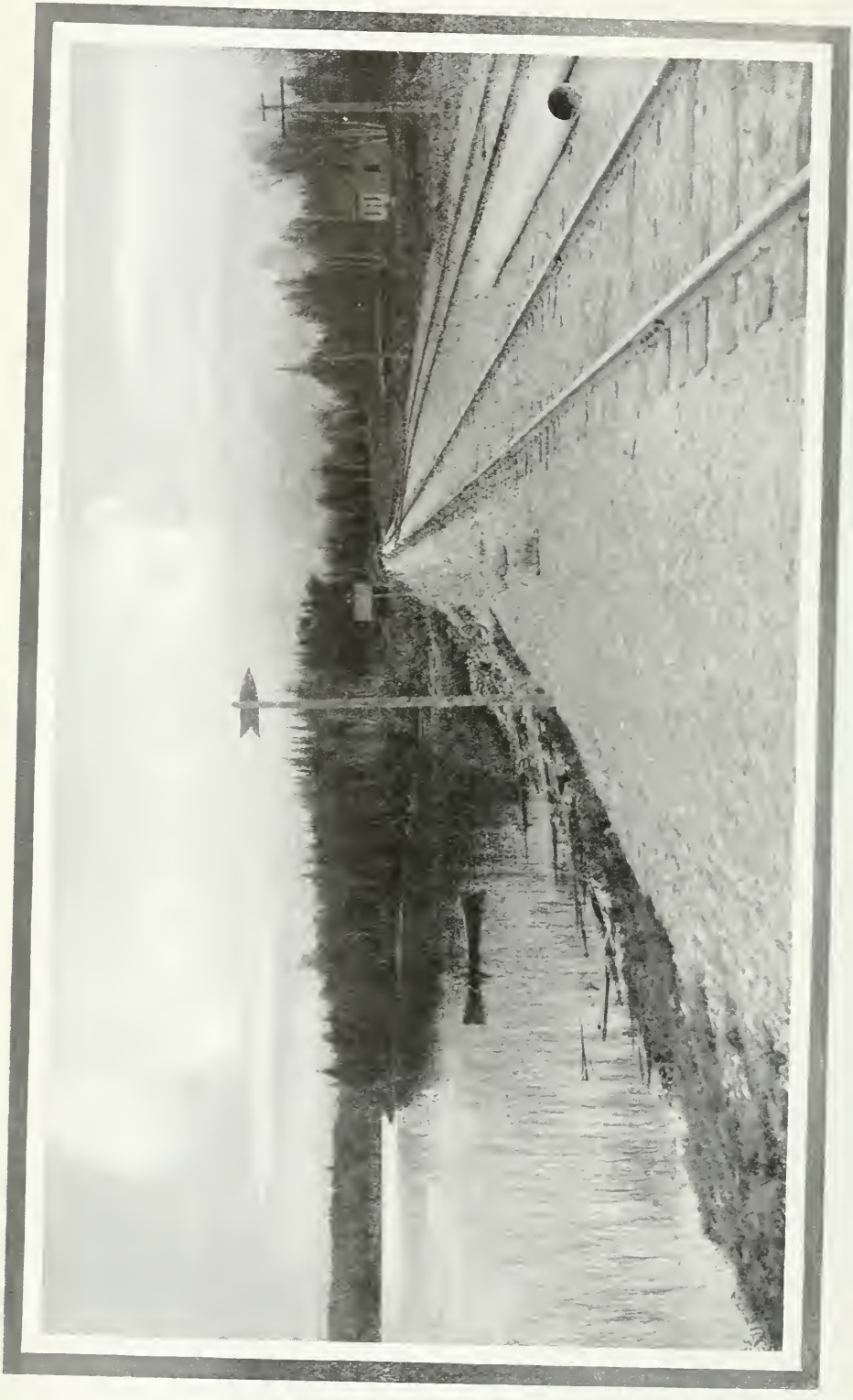
Porcupine Gowganda Survey.

Continued prospecting directed attention to the country to the west and south of Porcupine. The detail topography was unknown and it was decided to obtain accurate information concerning this district. Since July 1911, a survey party under Locating Engineer W. R. Maher has been in the field. A trial line was run from Gowganda to a connection with the Porcupine Branch at Timmins. Mr. W. B. McPherson and later Mr. J. G. McMillan was attached to the party as Geologist. The accompanying report and plan prepared by the latter are a valuable contribution to our knowledge of the topography and geology of the area traversed by the trial lines.

Should the future development require railway communication to be provided, we are in a position to immediately proceed with the location of a railway which can be built at very moderate cost.

The following table shows the aggregate length and nature of bridges, for October 31st, 1911, compared with the previous year:

	Main Track.				Branch Lines.			
	Oct. 31st. 191 .		Oct. 31st, 1910.		Oct. 31st, 1911.		Oct. 31st. 1910.	
	No.	Length.	No.	Length.	No.	Length.	No.	Length.
Steel Bridges	15	3,777.05′	15	3,777.05′	2	120′	2	120′
Masonry Bridges	1	20	1	20	....	.....	....	.....
Wooden Trestles	21	5,318′	22	5,430′	6	2,703′	3	1,219′
Wooden Culverts with I-Beam Decks	39	533′	39	533′	....	.....	....	.....
Timber Trestle replaced by embankment	1	112′	3	724′	....	.....	....	.....
Timber Trestle replaced by steel bridge	....	.....	1	476′	....	.....	....	.....



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COMPARATIVE TABLE OF CURVATURE—1910-1911.

Main Line.

Year.	1° curve.	2° curve.	3° curve.	4° curve.	5° curve.	6° curve.	Total.
1910.....	821.39	1,963.50	1,748.57	3,189.00	1,459.15	4,172.22	13,355.03
1911.....	"	"	"	"	"	"	"
					Eliminating		0

Porcupine Branch.

Year	1°	2°	3°	4°	5°	6°	7°	Total
1910.....	.....	.....	.....	.....	.....	.....	.....	.....
1911.....	63.44	51.15	445.13	71.43	120.17	467.57	105.40	1324.29

Description.	1911	1910
Track Centres with easements.....	53. miles	30 miles.
Track Ballasted.....	133.5 "	154 "
Main Track replaced with new 80-lb. steel.....	6.75 "	7.25 "
Second Track constructed	0. "	2.9 "
Private Siding and Spurs constructed.....	1.2 "	.8 "
Passing and Yard Siding constructed.....	5.5 "	5.01 "

ACCIDENTS.

The following is a list of personal injuries relating to Departments under my jurisdiction, occurring during the year.

January 21st, Apprentice Herbert Newman had wrist sprained and bruised by coming in contact with machinery in North Bay Junction shops.

March 12th, Jos. Montigny had one finger on left hand cut off and thumb bruised by machinery at North Bay Junction.

April 28th, Helper John Swan, North Bay Junction shops had tops of second and third fingers cut off.

April 27th, While loading rails at Mileage 16¾ a rail fell, breaking Section Foreman Wm. La Plante's leg.

June 7th, Machinist Harry Pilling had nail torn off second finger of left hand North Bay Junction shops, finger was caught between piston head and front of cylinder. Injuries were slight, party being off duty four days.

June 19th, Stephen Manceni, laborer in our Road Department, had right arm pierced just above the elbow by hook on cable stretcher at North Bay Junction.

July 1st, Dan Rus, employee on Porcupine Branch fell off a structure, injuring his back.

July 20th, Michele Cappetocci, laborer handling stone had nail and part of flesh on large toe of right foot torn off. Injuries slight.

July 28th, H. Freeman, assistant boiler maker, North Bay Junction, had a piece taken out of little finger of left hand.

August 1st, Laborer J. Muldoon was struck on back and injured by falling rail in North Bay Junction yard.

August 24th, Machinist W. W. Perry had eye slightly injured by piece of steel, North Bay Junction.

August 28th, B. Galacia, Italian laborer had foot jammed at South Porcupine.

September 1st, Carpenter C. J. Chamberlain had ribs injured by falling over a tool box in boarding car at Matheson.

September 9th, Hugh McIsaac had right leg broken, struck with rail which was being hoisted, Wataybeag Pit.

September 12th, Sectionman F. Kowal struck in face by cable on steam ditching machine boom, Nushka Siding.

September 22nd, Blacksmith John Bell was struck on back of hand by piece of steel. Necessary for him to have X-Ray used to locate same.

October 14th, While blasting Porcupine Branch, Camp No. 9, laborer G. L. Peterson was struck in face and eyes with sand and small pieces of rock. Sight of one eye completely destroyed.

October 16th, Laborer Alex. Dobous was struck on forehead by rail tongs of steam ditching machine, Mileage 228.

October 19th, Cable stretcher, stitching machine broke. When falling, braces and ropes struck cableman V. Guiseppi, injuring right leg and cheek.

During the year extensive changes were made in the organization and personel of the staff. On May first, J. J. O'Neil, Building Master, having resigned, W. J. Oldham, Supervisor of Bridges, was appointed Bridge and Building Master in charge of bridges, buildings and water service, reporting to the Chief Engineer.

Following the resignation of Superintendent J. H. Black, on August 1st, the position of Chief Engineer and Superintendent of Maintenance was created with jurisdiction over the following departments.

Engineering.
Motive Power and Car.
Road.
Bridge and Building.
Telegraph.

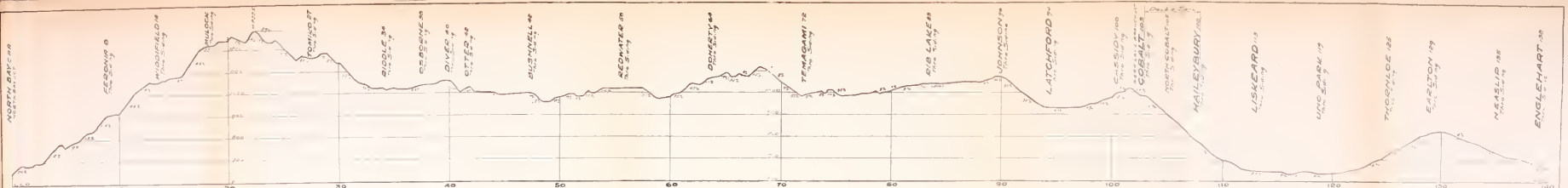
On January 1st, C. B. Smith having resigned, J. G. G. Kerry was appointed Consulting Engineer, and as such has given valuable advice.

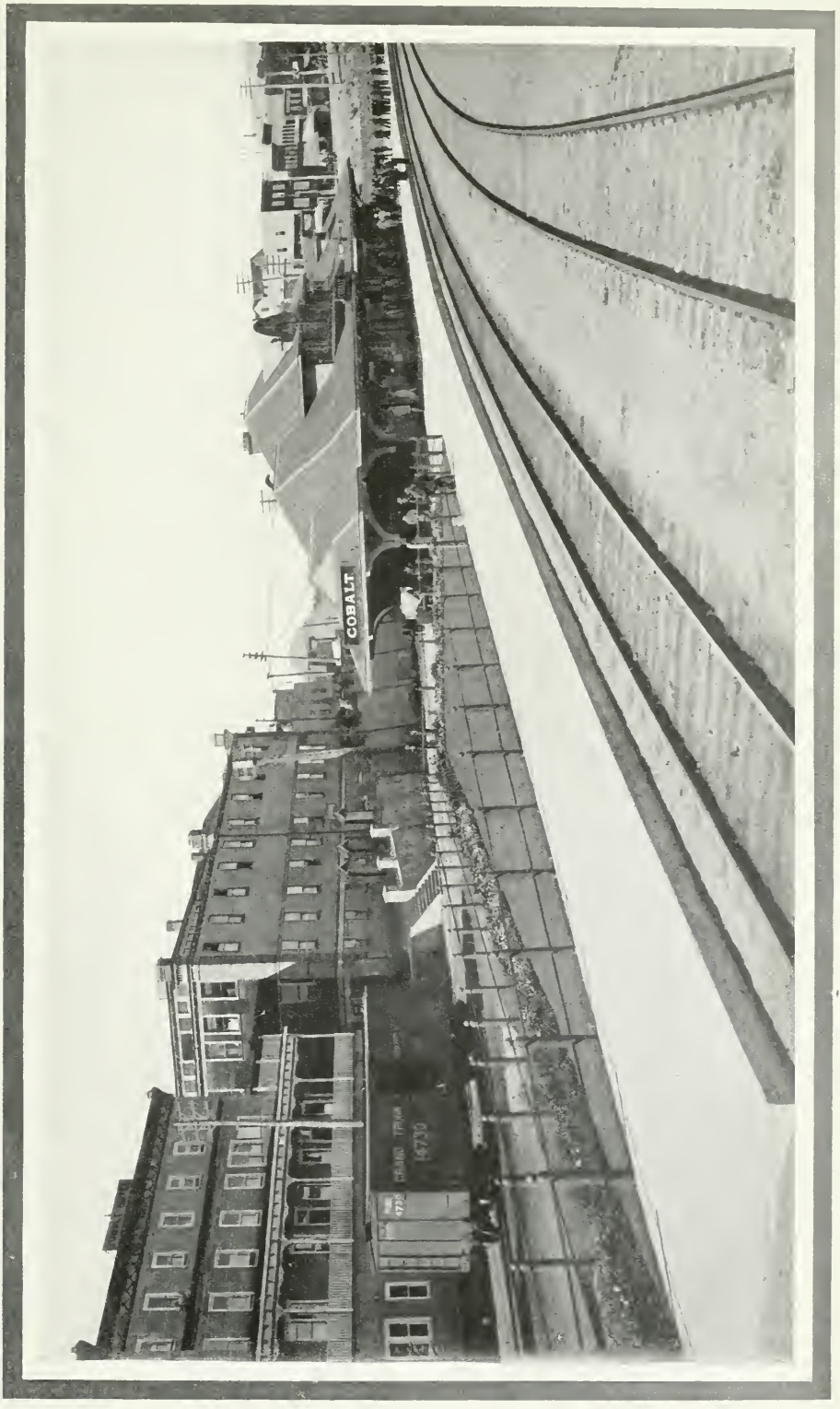
I desire to express my appreciation of the faithful and valuable services that have been rendered the Commission by the heads of all of the above Departments and their Assistants.

Respectfully submitted,

S. B. Clement,

Civil Engineer and Superintendent of Maintenance.


NORTH BAY 0
FERRIS 8
MCDONALD 14
HUNTER 20
DUNCAN 27
RIDDLE 34
OSBORNE 38
OLIVER 42
OTTER 46
BLYTHWELL 56
KEEWATER 68
DOHERTY 84
TEMAGAMI 72
R.R. LAKE 88
JOHNSON 98
LATCHFORD 114
CLESSOR 100
CHARLTON 103
CORBETT 108
NORTH COBALT 108
HAILEYBURY 102
LISKEARD 113
UNO PARK 119
THORNLOE 126
EASTON 129
HEASLIP 136
ENGLEHART 140
DIVISION No1 NORTH BAY to ENGLEHART
CHAMBERLAIN 14
DANE 41
KENNEDY 48
SESEMAN 54
BOULTON 61
DANOSE 68
BELLEVUE 103
MATHESON 105
NUSKA 114
HERONDALE 125
COCHRANE 145
DIVISION No2 ENGLEHART to COCHRANE
T. & N.O.R.
PROFILE
OF
MAIN LINE
SCALES HOR. 1 MI. ES. 1 INCH.
VERT. 100 FEET 1 INCH.



Cobalt Station.

MOTIVE POWER AND CAR DEPARTMENT.

Annual Report, year ending October 31st, 1911, of Thomas Ross, Master Mechanic, and H. L. Rodgers, Draughtsman.

New Rolling Stock.

During the year 1911 the following new equipment has been received:—

Four "Pacific Type" Passenger Locomotives, from the Canadian Locomotive Company, Kingston. No. 133 received in January, and Nos. 134, 135 and 136 during February. The following is a general description of these engines.

Weight on Drivers	133,375 lbs.
Weight on Front Truck	34,900 lbs.
Weight on Trailing Truck	34,825 lbs.
Total Weight	203,100 lbs.
Cylinders, diameter and stroke	21 in. by 28 in.
Valves, piston type	dia. 11 in.
Valve Gear	Walschaert.
Boiler, type	Extended Wagon Top.
Boiler Pressure	200 lbs.
Diameter at waist sheet, 63½ in.; at dome course, 72⅜ in.	
Tubes, Number diameter and length	272, 2 in., 19 ft.
Firebox	95¼ in. by 69¼ in.
Grate Area	46 sq. ft.
Heating Surface, Tubes	2705 sq. ft.
Heating Surface, Firebox	162 sq. ft.
Heating Surface, Total	2867 sq. ft.
Driving Wheel Base	12 ft. 7 in.
Total Wheel Base of Engine	31 ft. 6 in.
Diameter of Driving Wheels	69 in.
Diameter of Engine Truck Wheels	33 in.
Diameter of Trailing Truck Wheels	42 in.
Tractive Power	30,400 lbs.
Capacity of Tender	5,500 imp. gals., 10 tons coal.
Weight of Tender, Loaded	135,600 lbs.

Three Parlor-Cafe Cars, from the Canadian Car and Foundry Co., Montreal. These cars have steel underframes and body framing, also six-wheel steel trucks. Interior is finished in mahogany.

Dimensions: length over body, 70 ft. 3½ in., over buffers, 80 ft. 3 in. Cars are equipped with Pintsch Gas lighting and Gold Car Heating Co's. steam heating system.

Contract has been awarded to the Canadian Locomotive Co., Kingston, for four Consolidation Locomotives, of which the following are some of the details:—

Weight on Drivers	180,000 lbs.
Weight on Truck	26,000 lbs.
Weight, Total	206,000 lbs.

Cylinders, diameter and stroke	23 ins. by 30 ins.
Valves, piston type, diameter	14 in.
Valve Gear	Walschaert.
Boiler, type	Extended Wagon Top.
Boiler pressure	180 lbs.
Diam. at Waist Sheet 71 in., at Dome Course, 78 in.	
Tubes, number and length	250, 2 in.; 14 ft. 6 in., 24, 5 in
Firebox, inside	96 in. long by 75¼ in. wide.
Grate area	50 sq. ft.
Heating Surface, Tubes	2,353 sq. ft.
Heating Surface, Firebox	166 sq. ft.
Heating Surface, Total	2,519 sq.ft.
Superheater, type	Vaughan Horsey.
Driving Wheel Base	15 ft. 10 in.
Total Wheel Base of Engine	24 ft. 6 in.
Diameter of driving wheels	57 in.
Diameter of Engine Truck Wheels	31 in.
Tractive Power	42,525 lbs.
Capacity of Tender	5,500 Imp. gals., 10 tons coal.
Weight of Tender, loaded	135,600 lbs.

Delivery of these engines to be in early part of 1912.

One American Railroad Ditcher, Serial No. 455 received during April, from the American Hoist and Derrick Co., St. Paul.

New Shop Equipment.

The following new machinery has been received:
1—42 in. Car Wheel Lathe, from the London Machine Tool Co.
1—48 in. Car Wheel Boring Mill from London Machine Tool Co.
1—300 ton Hydraulic Car Wheel Press from London Machine Tool Co.

These machines are all motor driven and have been installed at Englehart machine shop.

One Improved Triple Valve Testing Rack, purchased from the Westinghouse Air Brake Company, Hamilton, and installed in North Bay Junction machine shop.

Electrical Work.

All electrical work in connection with the different buildings and locomotives has been properly maintained. Electrical headlamps have been installed on locomotives Nos. 107, 117, and 120. Locomotives now equipped with Pyle National Electrical headlamps are Nos. 103, 105, 106, 107, 108, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, also Steam Wrecking Cranes Nos. 1 and 2, and Snow Plows Nos. 2, 3 and 4. Road Locomotives Nos. 101, 102, 104, 109, and 110, also switching engines Nos. 150, 151, 152, 153, are still equipped with oil headlamps.

During the month of October the coal chutes at Englehart were equipped with 12 16 c.p. incandescent electric lamps inside of chutes, and two arc lamps, one on each side of coal chutes.

A motor driven sewerage pump has been installed at the Cobalt Depot. Depot, freight shed and sleeping camps at Porcupine were arranged for electric lighting and connected to the Northern Ontario Power Company's lighting system.

At South Porcupine, the depot, freight shed, sleeping camps and engine shed have been wired and connected up to the local lighting company's circuits.

On account of an accident to our lighting plant at Cochrane during September it was necessary to connect up to the Northern Ontario Power Company's system for six weeks until repairs had been made to our own plant. During the period which our plant was out of commission, the Northern Ontario Power Company supplied us with 2,264 kilowat hours.

The following tabulated data is a comparison of the number of kilowat hours used each month at North Bay, Englehart, and Cochrane, since the electric plants were put in operation, until October 31st, 1911.

Plant at North Bay installed and put in operation Jan. 11, 1909.

Plant at Englehart installed and put in operation Feb. 1, 1909.

Plant at Cochrane installed and put in operation, Mar. 1, 1910.

Month.	North Bay.			Englehart.			Cochrane.		
	1909	1910	1911	1909	1910	1911	1909	1910	1911
January.....	3,315	4,557	5,261	.....	6,368	6,160	.....	.....	1,251
February....	4,898	3,479	4,168	1,811	4,988	5,316	.....	.....	913
March.....	3,412	3,016	3,018	1,549	4,635	6,539	.....	200	936
April.....	2,634	2,480	2,227	1,271	4,422	3,669	.....	22	609
May.....	1,965	1,761	1,750	1,371	3,762	5,743	.....	.....	663
June	1,929	1,444	2,250	1,110	2,928	3,662	.....	.....	287
July.....	1,428	1,537	2,268	888	2,810	3,779	.....	.....	603
August.....	1,604	1,628	2,042	962	3,054	4,243	.....	.....	754
September...	2,275	2,484	3,091	1,246	3,718	4,890	.....	.....	1,044
October	2,908	3,092	4,859	2,185	4,366	6,277	.....	.....	1,663
November ...	3,981	4,139	.....	5,503	4,361	.....	.....	687	.....
December....	5,961	4,561	.....	6,293	5,898	.....	.....	1,596	.....
Totals.....	36,310	34,178	30,934	24,189	51,310	50,378	.....	2,505	8,723

New Equipment Applied Locomotives and Cars—Air Brake.

Passenger engines Nos. 111, 112 and 114 have been equipped with the No. 6 E. T. Brake. This is the most efficient engine and tender brake now available, and it is suitable for any class of service. This equipment will work in perfect unison with the High Speed Schedule L. N. Brake now being installed on our passenger cars.

Engines 121 and 125 have been equipped with the straight air brake Schedule S-W-A. This equipment was installed on the above engines in addition to the plain automatic brake.

High Speed Brake, Schedule L. N., has been installed on the following passenger equipment.

First class Coaches Nos. 100, 102, 106, 107 and 110.

Second Class Coaches Nos. 6 and 34.

Mail and Express Cars No. 5.

Baggage and Express Cars Nos. 7 and 19.

Baggage Cars Nos. 11, 13 and 15.

This equipment is one of the most efficient brakes for passenger service. The important features over the former type, (namely Schedule P. 2). are :—

Quick Recharge—Making it possible to obtain full braking power immediately after a release.

Quick Service—This makes certain the prompt and uniform application of all brakes in the train.

Graduated Release—This permits of the best method of braking, namely a heavy application at high speed, gradually reduced as the speed becomes moderate.

High Emergency—This feature makes it possible to use the equipment as a high speed brake when carrying 90 lbs. brake pipe pressure, and obtain better results than when using 110 lbs. pressure with the old standard equipment.

In the installation of this brake, all foundation brake gear has been straightened and made standard; trucks have been overhauled and put in good condition to stand the extra strain of the high speed brake.

New Equipment Applied to Locomotives and Cars.

Engines Nos. 101 to 108 have been equipped with "Improved Gollmar Bell Ringers."

Two galvanized iron water tanks have been applied to Private Car "Sir James."

The following passenger equipment has been equipped with the Safety Car Heating and Lighting Company's Pintsch Gas Equipment.

First Class Coach No. 111	Applied in March.
Baggage Car No. 11	Applied in December, 1910.
Mail and Express Car No. 5	Applied in April.
Baggage and Express Car No. 7	Applied in April.

Summary of Extensive Repairs on Locomotives, etc.

During the year the motive power equipment has been properly maintained and the repairs and renewals necessary from time to time have been executed thereon.

Extensive repairs performed on locomotives at North Bay Junction shop as follows:—

Engine No. 120, general repair, engine and tender painted, completed during the month of November 1910.

Engine No. 116, heavy repair during November 1910.

Engine No. 113, Heavy repair, engine and tender painted, completed during the month of December, 1910.

Engine No. 101, general repair, new boiler tubes, November, 1910.

Engine No. 115, general repair, new boiler tubes, engine and tender painted, completed during January.

Engine No. 105, driving tires turned, month of January.

Engine No. 150, given a light repair, month of January.

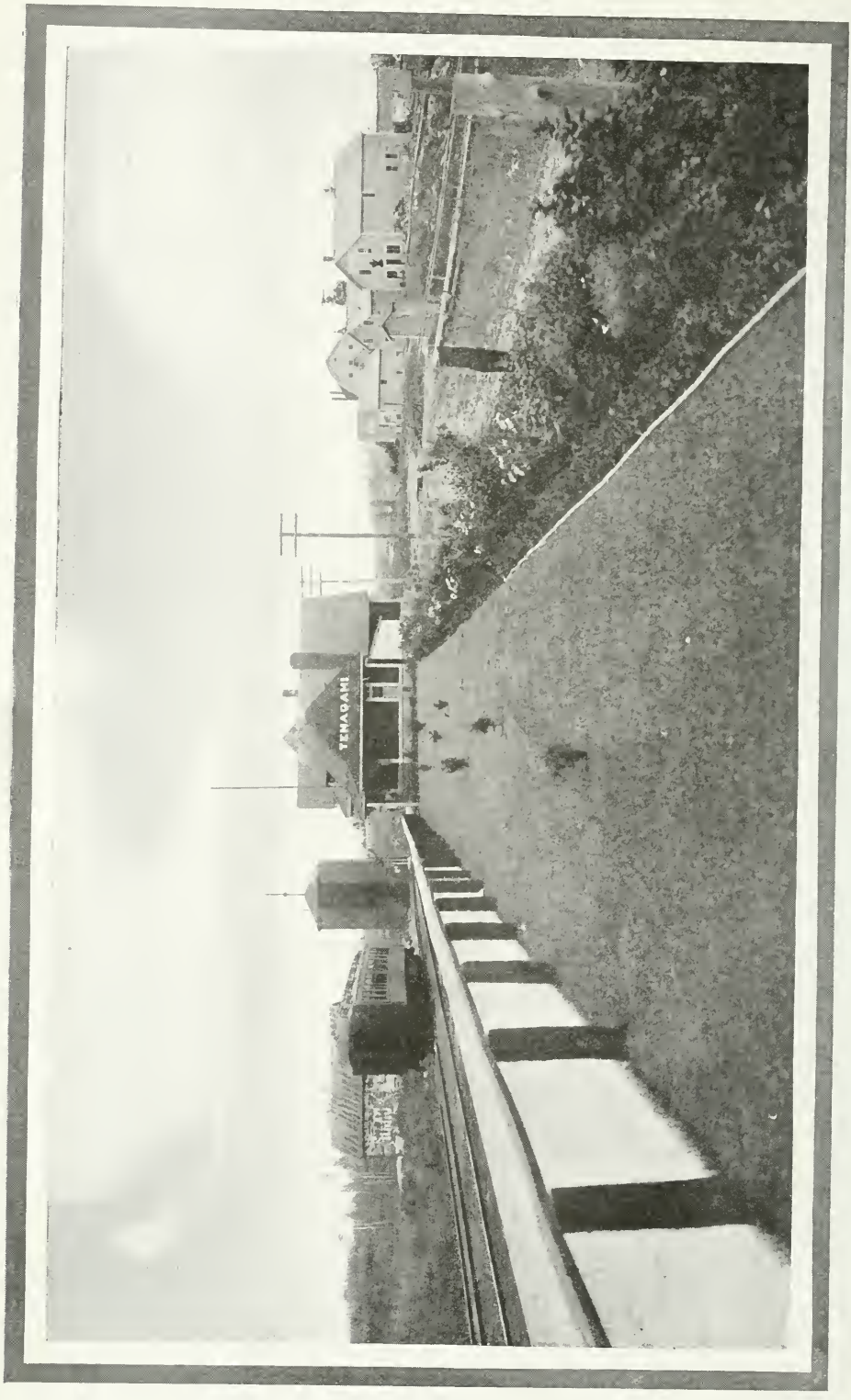
Engine No. 127, heavy repair, all tires turned, completed during January.

Engine No. 109, heavy repair, month of January.

Engine No. 123, given light repair, during January.

Engine No. 151, given light repair during February.

Engine No. 114, given light repair during February.



Temagami Station.

Engine No. 130, driving engine truck and tender truck tires turned during month of February.

Engine No. 106, heavy repair, engine and tender painted, completed during the month of March.

Engine No. 126, general repair, new boiler tubes, completed in March.

Engine N. 132, given light repair during month of March.

Engine No. 108, heavy repair, engine and tender painted, during April.

Engine No. 122, given light repair during month of April.

Engine No. 118, general repair, during March and April.

Engine No. 131, given light repair during May.

Engine No. 104, heavy repair, engine and tender painted, during April and May.

Engine No. 120, given light repair month of June.

Engine No. 153, given light repair during month of June.

Engine No. 128, given light repair during month of June.

Engine No. 116, general repair, new boiler tubes, engine and tender painted, during May and June.

Engine No. 103, boiler repaired, made necessary account of being damaged by accident.

Engine No. 119, given light repair, month of June.

Engine No. 150, heavy repair, 234 boiler tubes renewed, month of June.

Engine No. 115, given light repair during July.

Engine No. 109, light repair, engine and tender painted during July.

Engine No. 121, general repair, during June and July.

Engine No. 117, general repair, during July and August.

Engine No. 102, general repair, during September.

Engine No. 153, heavy repair, during October.

Engine No. 127, heavy repair, during month of October.

Engine No. 107, general repair during September and October.

NOTE: The term "general repair" used above in cases where an engine has reeeived a thorough overhauling and rebuilding. "Heavy repair" in cases where engines have been given such repairs as driving tires turned, driving boxes renewed, valve, piston rings, and side rod bushings renewed; and "light repair" in cases where engines have received minor repairs, such as renewing side rod bushings, renewing piston rings and valve rings.

Each engine has had the boiler washed out once every two weeks when in regular service. Staybolts in fireboxes have been regularly tested, and renewals have been made where necessary.

Nettings, ashpans and *dampers* have been regularly examined at the end of *each trip during* the summer season, as a precaution against fire. During damp weather and at such times as the danger from this source would be reduced to a minimum, the nettings, ashpans, and dampers have been examined twice a week.

Engine Dispatch.

Statement showing the number of engines dispatched from the different terminal points during the year:—

Terminal Stations.	No. of Engs. Dispatched.
North Bay Junction	2,871
Cobalt	317
Englehart	3,235
Cochrane	855
Total	7,278

Locomotive Mileage.

The following statement shows the mileage made by the locomotives belonging to this Railway:—

Engine No.	Miles Run, 1911.	Total Mileage of Engines.
101	27,578	221,050
102	7,534	196,604
103	21,482	189,481
104	15,469	198,266
105	28,222	152,832
106	25,604	153,075
107	1,416	155,821
108	39,836	203,014
109	31,222	217,573
110	41,089	159,713
111	44,966	219,997
112	42,456	220,046
113	44,699	222,356
114	46,846	223,268
115	26,384	114,754
116	26,471	105,855
117	23,428	105,451
118	27,765	118,982
119	37,106	125,524
120	34,745	114,361
121	24,409	99,672
122	23,605	108,138
123	20,519	102,621
124	23,252	92,845
125	35,226	115,812
126	13,096	93,002
127	32,597	82,475
128	32,755	79,981
129	36,683	69,402
130	29,346	35,177
131	36,700	75,122
132	35,855	66,946
133	5,862	5,862
134	14,344	14,344
135	14,142	14,142
136	10,273	10,273
150	21,158	140,629
151	32,067	191,761
152	25,588	53,992
153	17,669	50,715
Total	1,079,514	4,925,934

The Motive Power Equipment has been generally assigned during the year as follows:—

Engine No. 101, freight and work service.
Engine No. 102, freight and work service.
Engine No. 103, freight and work service.
Engine No. 104, freight and work service.
Engine No. 105, work service.
Engine No. 106, freight and work service.
Engine No. 107, freight service.
Engine No. 108, passenger and freight service.
Engine No. 109, passenger and work service.

Engine No. 110, passenger service.
Engine No. 111, passenger and work service.
Engine No. 112, passenger service.
Engine No. 113, passenger service.
Engine No. 114, passenger service.
Engine No. 115, freight service.
Engine No. 116, freight service.
Engine No. 117, freight and switching service.
Engine No. 118, freight and switching service.
Engine No. 119, freight service.
Engine No. 120, freight and switching service.
Engine No. 121, freight and work service.
Engine No. 122, freight and work service.
Engine No. 123, freight and work service.
Engine No. 124, freight and work service.
Engine No. 125, freight and work service.
Engine No. 126, freight service.
Engine No. 127, passenger service.
Engine No. 128, passenger service.
Engine No. 129, freight service.
Engine No. 130, freight service.
Engine No. 131, freight service.
Engine No. 132, freight service.
Engine No. 133, passenger service.
Engine No. 134, passenger service.
Engine No. 135, passenger service.
Engine No. 136, passenger service.
Engine No. 150, switching service at Cobalt.
Engine No. 151, switching at North Bay Junction.
Engine No. 152, switching service at North Bay Junction, and work service Porcupine Branch.
Engine No. 153, switching Englehart and North Bay Junction.

Passenger Equipment Repairs.

Extensive repairs have been made to passenger equipment at North Bay Junction shops as follows:—

Baggage car No. 11, new steam pipes installed, interior painted, grained and varnished, exterior re-colored, completed December 27th, 1910.

Baggage car No. 19, Baker heater removed and direct steam heating system installed. Completed January 25th.

Mail and Express car No. 5, trucks overhauled, interior and exterior repainted and varnished, completed during month of April.

Baggage and Express car No. 7, interior and exterior painted and varnished during April. This car was converted into a baggage and express car, it being originally a mail and express car.

Baggage and Express cars Nos. 13 and 15 have been given a general repair, trucks overhauled and exterior and interior repainted and varnished.

Second class coaches Nos. 6, 30 and 34 given a general repair, trucks rebuilt, interior and exterior of car repainted and varnished.

During the month of April coach No. 22 was rebuilt into a demonstration car and is being used for the purpose of exhibiting agricultural produce from Northern Ontario through different parts of the country.

First class coaches Nos. 100, 102, 106, 107, 110, 111 and 112 have been thoroughly overhauled, trucks rebuilt, necessary repairs made to woodwork of bodies of coaches, interior and exterior repainted and varnished.

Official Cars.

Official car "Temagami" was given a general repair during the month of May, trucks rebuilt, steel sill straightened, roof taken off and canvas applied, interior and exterior of car repainted, grained and varnished.

Private car "Sir James" was revarnished during the month of October.

Coach Cleaning.

Statement showing the number of coaches cleaned at the different terminal stations during the year:—

Station.	Number of Coaches Cleaned.
North Bay Junction	2,086
Englehart	7,649
Cochrane	2,215
Total	11,950

Conductors' Vans, Repairs.

Conductors' vans Nos. 51, 52, 55, 63 and 67 have been thoroughly overhauled, trucks rebuilt, interior and exterior of vans repainted.

Repairs to Freight and Work Equipment.

Rebuilt flat cars Nos. 60223, 60495, 60353, 60567 and 60279.

During the year sixty-three flat cars have been redecked at North Bay Junction shops; new end sills have been applied to thirty-three flat cars.

Bills collectible covering cost of repairs to foreign cars have been rendered monthly against car owners, in accordance with the Standard Code of Rules Governing the condition of and repairs to freight cars for the interchange of traffic, adopted by the Master Car Builders' Association.

Steam shovels, ledgerwoods, snow plows, snow flangers, etc., have had all necessary repairs made. Snow plows Nos. 3 and 4, snow flangers Nos. 1 and 2, also steam shovel No. 2 have been repainted and relettered.

Steel-Tired Wheels Turned and Wheels Applied Rolling Stock.

During the year fifty-eight pairs of driving wheels; one hundred and six pairs of coach wheels; eighty-one pairs of tender wheels, and twenty-nine pairs of engine truck wheels have been turned on the wheel lathe installed in North Bay Junction machine shop. Also sixty-six new coach wheel tires, and eight locomotive driving tires have been bored out with the wheel lathe before being applied to wheels.

New wheels have been applied to rolling stock as follows:—

To Locomotives.

Eight pairs of 33 in. cast iron wheels mounted on 3¾ x 7 in. axle.

Forty-three pairs of 33 in. cast iron tender truck wheels mounted on 5 in. by 9 in. axle.

Four pairs of 33 in. steel-tired tender truck wheels mounted on 5 in. by 9 in. axle.

Two pairs of 28 in. steel-tired engine truck wheels.

One pair of 28 in. cast iron engine truck wheels.

To Passenger Equipment.

Two pairs of steel-tired wheels mounted on 3¾ in. by 7 in. axle.

Two pairs of 36 in. steel-tired wheels mounted on 4¼ by 8 in. axle.

To Freight Equipment.

Ten pairs of 33 in. cast iron wheels mounted on 3¾ by 7 in. axle.

Ninety-nine pairs of 33 in. cast iron wheels mounted on 3¾ by 7 in. axle.

Fourteen pairs of 33 in. cast iron wheels mounted on 5 by 9 in. axle.

Thirteen pairs of 33 in. cast iron wheels mounted on 5½ by 10 in. axle.

To Work Department.

Two pairs of 30 in. cast iron wheels mounted on 4¼ by 8 in. axle.

Forty pairs of 33 in. cast iron wheels mounted on 4¼ by 8 in. axle.

Six pairs of 33 in. cast iron wheels mounted on 5 by 9 in. axle.

New Tires Applied.

At North Bay Junction machine shop, worn-out tires have been removed from thirty-three pairs of coach wheels, and new tires applied; also eight new tires have been applied to locomotive driving wheels.

Rolling Stock Destroyed.

T. & N. O. flat cars Nos. 60151, 60349, 60215, 60271, 60413, 60305, 60247 and 60773, were destroyed by fire at Porcupine on July 11th.

T. & N. O. flat car No. 60401 was destroyed on Grand Trunk Railway at Gravenhurst, July 31st. The trucks and air brake equipment of this car have been returned to this railway and bill rendered against G. T. R covering depreciated value of car body.

G. T. R. box cars Nos. 4902 and 14611 were destroyed on our line, in wreck at Mileage 115½ on May 27th.

C. P. R. box car No. 40862 was destroyed by fire on our line at Porcupine, July 11th.

C. P. R. box car No. 57186, destroyed on our line in wreck at Milleage 66¾ on August 15th.

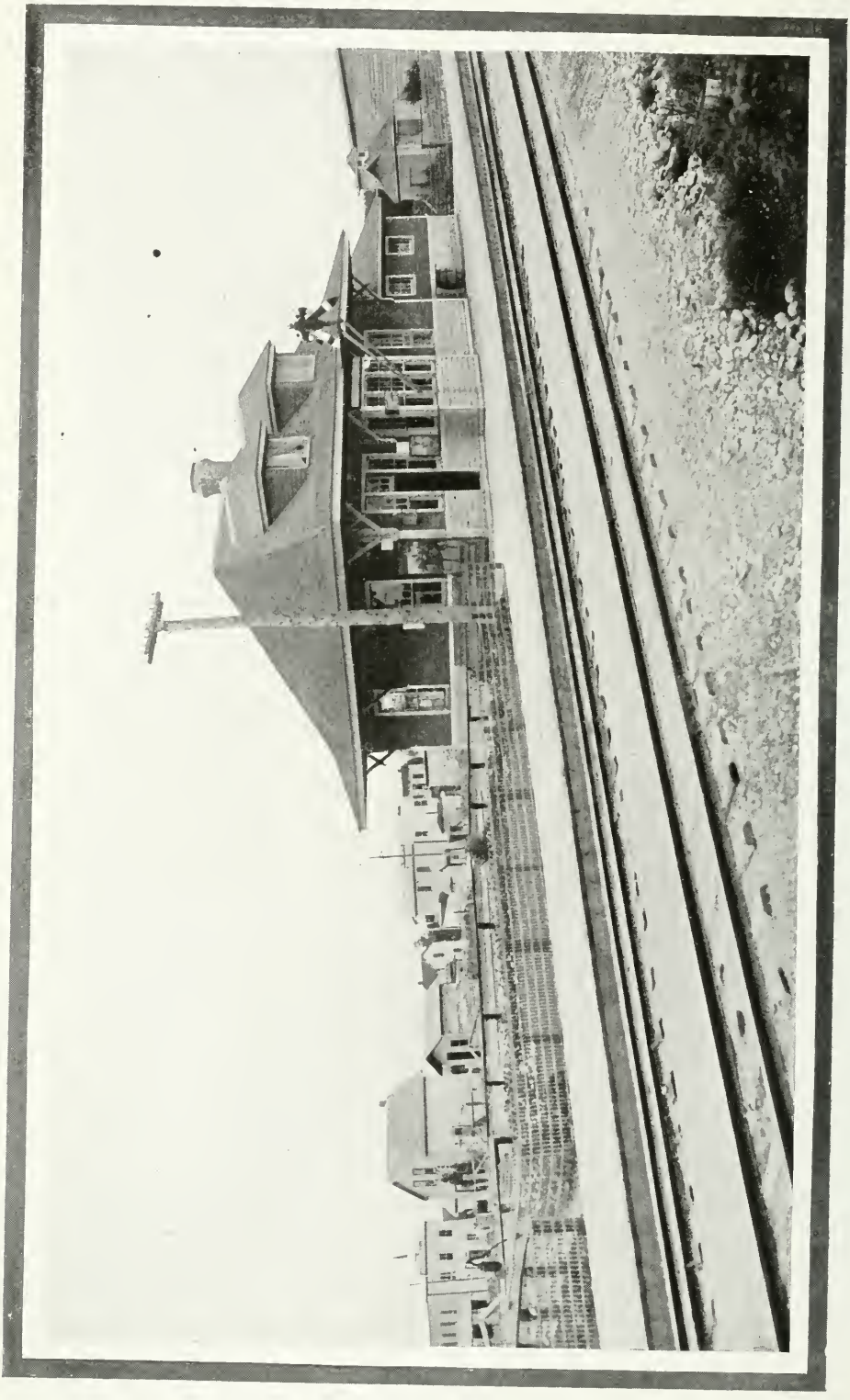
G. T. R. box car No. 9231 was destroyed by fire at Heaslip on September 4th.

The trucks, air brake equipment and iron work belonging to G. T. R. box cars Nos. 4902, 14611 and 9231, also C. P. R. box car No. 57186, have been returned to owners, and credit allowed this railway, per rules of Master Car Builders' Association.

Carpenter Shop.

The following miscellaneous articles have been manufactured in the carpenter shop at North Bay Junction:—

145,000 track shims for Road Department.



North Cobalt Station.

1 two-section slat cattle guard.
2 portable telegraph offices for Road Department.
7 roller towel racks with locks and keys.
1 pair of jack arm blocks for steam shovels.
50 transfer filing boxes for the different offices.
7 gang planks for use at freight sheds.
1 barrel skid for unloading barrels from cars.
2 bulletin boards for stations.
18 track blocks for Porcupine Branch.
3 sixteen-foot ladders for stations.
3 pilots for locomotives Nos. 112, 129 and 133.
4,350 stakes 2 in. by 2 in. by 18 in. for Engineering Department.
250 stakes 2 in. by 2 in. by 3 ft. for Engineering Department.
2 levelling rods.
4 surveyor's pickets.
1 sleigh for Stores Department.
2 tables for Mining Engineer's office, Cobalt.
1 office desk for Kelso station.
2 draughting tables for Chief Engineer's office.
1 table for Matheson station.
10 waybill boxes for flag stations.
2 laundry boxes for bunkrooms at Englehart and Cochrane.
1 cupboard for Stores Department.
2 platform snow scrapers for Haileybury station.
66 frames for timetable cards, explosive notices, etc.
56 cedar posts turned for fence around flower garden, New Liskeard.

Pattern Making.

During the year there have been one hundred and fifty-three patterns made at the railway's shops at North Bay Junction, for repairs and renewals of the different parts of locomotives, freight and passenger cars, snow plows, shop machinery, and other equipment. All patterns are the property of the railway, and a proper record is kept of the location of the same.

Lumber Report.

There have been forty-five carloads of lumber received during the year..	379,294 feet
Lumber used by Buildings Department	174,699 feet
Lumber used by Motive Power and Car Department	154,373 feet
Total amount of lumber used	329,072 feet
Total amount of lumber handled	708,366 feet

The following is distribution of lumber used in repairing rolling stock:—

Used for Locomotives.

Spruce	214 ft.	
Whitewood	349 ft.	
Birch	668 ft.	
Pine	5,020 ft.	
Oak	4,222 ft.	
		10,473 ft.

Used for Passenger Equipment.

Ash	275 ft.	
Birch	2,385 ft.	
Whitewood	8,324 ft.	
Pine	4,738 ft.	
Oak	6,952 ft.	
Cherry	76 ft	
		22,750 ft.

Used for Freight Cars.

Oak	3,780 ft.	
Pine	7,796 ft.	
Birch	2,085 ft.	
Spruce	14,029 ft.	
Whitewood	668 ft.	
		28,358 ft.

Used for Ballast Cars.

Oak	3,133 ft.	
Pine	2,751 ft.	
Spruce	74,669 ft.	
Birch	180 ft.	
		80,733 ft.

Used for Other Equipment in Work Service.

Oak	1,591 ft.	
Pine	9,279 ft.	
Spruce	1,000 ft.	
Whitewood	14 ft.	
Birch	175 ft.	
		12,059 ft.
Grand Total		154,373 ft.

Rolling Stock and Equipment.

The motive power, rolling stock and equipment of this railway, at present consists of the following:—

36 road locomotives.
4 switching locomotives.
2 official cars. 1 paymaster car.
14 first class passenger coaches.
20 second class passenger coaches.
1 exhibition car.
3 parlor-cafe cars.
7 baggage and express cars.
5 mail and express cars.
19 conductor's vans.

10 stock cars.
147 box cars.
98 steel underframe flat cars.
376 flat cars (wood body).
12 steel drop-bottom dump cars.
17 Hart convertible cars.
3 snow plows.
3 snow flangers.
3 right-hand ballast plows.
3 left-hand ballast plows.
3 centre ballast plows.
1 Jordan ballast spreader.
1 pile driver.
1 American railroad ditcher.
2 steam cranes.
3 steam shovels.
3 ledgerwood rapid unloaders.
2 auxiliary boarding cars.
12 flat cars assigned to special service.
2 auxiliary tool cars.

Englehart Station.

TELEGRAPH DEPARTMENT.

Annual Report, Year ending October 31st, 1911. W. J. Kelly, Supervisor of Telegraphs.

The reconstruction of the telegraph line North Bay to New Liskeard was continued. This portion of the telegraph line was originally built by contract and is not strong enough to carry the additional wires it has been necessary to string.

During the year the pole line was entirely rebuilt from M.P. 88 to M.P. 72 and from M.P. 56 to M.P. 51; 82 miles of the 113 miles between North Bay and New Liskeard have now been rebuilt. The wires have been transferred to the new poles and the old poles were taken down and piled conveniently for loading.

While making general repairs to the telegraph line between Englehart and Cochrane all wires were removed from bridges and placed on independent poles. Over the entire system, all wires have now been removed from bridges.

At Haileybury a telegraph and telephone pole lead, consisting of twenty-three 45 foot poles each with three 6 pin cross-arms was constructed along Delia Lane from the station grounds to the down-town commercial office of the Strong Drug Co. Nine loops of No. 9 B. & S. copper wire strung. All poles were neatly painted.

At North Bay Junction a telegraph and telephone pole lead was built to the new yard office. Six loops, (12 wires) were strung.

The increased telegraph business from the Porcupine Gold Mining Camp necessitated the extension of telegraph circuits No. 4 and No. 5 from New Liskeard to Iroquois Falls. These were extended by stringing No. 9 B. & S. copper wire with standard transpositions so that at any time these circuits can be withdrawn from commercial telegraph service and used for a telephone train dispatching circuit. The long distance telephone circuit was extended from Englehart to Cochrane with No. 10 N. B. standard copper wire, but owing to the congestion of telegraph business from Porcupine, this copper circuit is being used for commercial telegraph service.

A loop extension of No. 3 telegraph circuit has been made from Cobalt to Haileybury to relieve congestion on other wires.

On September 21st, seven special extra loops were strung and instruments installed to receive election returns.

Two hundred and twenty-four miles of No. 9 B. & S. copper wire, porcelain insulators and other fittings necessary for telephone train dispatching copper circuit North Bay to New Liskeard were purchased. This will be strung early in the New Year, and will be used in commercial telegraph service until it is decided to install telephone train dispatching instruments.

During the year office poles at Englehart, Haileybury and North Cobalt have been painted on account of their being in close vicinity of flower gardens at these points. At Englehart station, six forty foot poles were erected in order to carry wires over station. The old poles at this latter point have all been removed from garden plot. A 20 conductor cable was also installed, and thus all open wire work removed.

At Tomiko Station new office poles were erected and wires carried over station. A 20 conductor cable was installed and all telegraph wires cut into station for testing purposes.

At Uno Park station office poles were erected, also standard crossing of main-line and siding made by stringing copper wire.

At Earlton new office poles were erected and wires carried over station as old poles were in line of office window thereby obstructing view of approaching trains north and south.

At Heaslip station new office poles were erected and a standard crossing of mainline and sidings made by stringing copper wire.

Temporary offices were opened at ballast pits at the following points:—

Iroquois Falls.	Barbers' Bay.
Drinkwater Pit.	Wataybeag Pit.
Nellie Lake.	Bourkes.
Cassidy Pit.	Rabbit Creek Pit.
Mulock Pit.	Woodland Pit.

These offices are being closed as work is completed.

During the year, Swastika office was opened for commercial and railway business.

During the year party telephone lines were installed as below with connection to nearest station where long distance connection can be obtained to all points with Bell Telephone System:—

Haight and Dickson's mill, one mile from mainline with connection at Temagami.

DeLaplante Lumber Co., Tomiko Mills, with connection at Tomiko.

Porcupine Branch.

Temporary telephone line from Iroquois Falls to South Porcupine was installed for use of Construction Department. Wires were strung on trees.

New pole lead constructed Iroquois Falls to South Porcupine, (27 miles), 40 poles per mile with six pin arm and extra cut on poles for an additional arm. Six No. 8 wires were strung, and the temporary telephone line was transferred from trees to new pole lead.

At Porcupine, pole lead consisting of sixteen 40 foot poles was constructed on Queen Street from railway station to local stock exchange office at that point, loop strung to local stock exchange office and four additional wires strung for future commercial business.

At South Porcupine a pole lead of twenty-six 40 foot poles was constructed and loop strung along Railway Street from station to Osler's broker office and six additional wires strung for future commercial business.

Telegraph offices were opened for railway and commercial business at Porcupine Branch at Iroquois Falls, Porcupine and South Porcupine.

In the disastrous fire of July 11th, between Porcupine and South Porcupine 40 poles were burned and about 60 six-pin crossarms, these have all been replaced.

Main battery of 300 cells has been installed at South Porcupine.

SUMMARY.

Summarizing the above reports, the following is work performed by this Department during the year:—

Fifty miles telegraph pole lead constructed, 40 poles per mile, 28 miles of which were constructed on Porcupine Branch including mainline Porcupine Branch and down-town lines Porcupine and South Porcupine, and twenty-two miles on

mainline including down-town pole lead at Haileybury and pole lead to new yard office at North Bay Junction.

One hundred and sixty-nine miles No. 8 B. & S. iron wire were strung, 162 on mainline Porcupine Branch and 7 miles on Porcupine and South Porcupine down-town lines.

Two hundred and twenty-four miles of No. 9 B. & S. copper wires were strung between New Liskeard and Iroquois Falls.

Two hundred and thirty miles of No. 10 N. B. S. copper wire were strung between Englehart and Cochrane.

Sixteen miles of No. 10 N. B. S. copper wire strung for Haileybury down-town pole line and North Bay pole line.

Ten miles of No. 9 B. & S. copper wire strung between Cobalt and Haileybury.

The total wire in service is 2299 miles, which is an increase of 639 miles over previous year.

The following tables show the telegraph and telephone equipment at present in use at the various stations:

Schedule of Telephones and Switches in Service, October 31st, 1911.

Mileage.	Place.	Building.	Office Telephones.	Cabinet Telephones.	Switch.
0	North Bay				
8.68	Feronia		1		
13.52	Widdifield		1		1
27.31	Tomiko	Fer. & McF. Office	1		1
	"	DeLaplante L. Co	1		
	"	Buchanan's & Stn	2		
32.11	Jocho	Station	1		
39.84	Diver	Station	1		1
47.13	Bushnell	Station	1		
55.54	Redwater	Station	1		
63.04	Doherty	Station	1		
71.8	Temagami	Station	1	1	1
79.5	Bl & Wager	Office	1		
81.5	Ha. & Dick	Office	1		
80.96	Rib Lake		1		
89.44	Johnson	Office	1		
94.13	Latchford	Station	1	1	1
98.55	Gillies Depot	Station	1		
102.8	Cobalt	Town Office	1	1	1
	"	Yard	5		
107.44	Haileybury	Station	1	1	1
112.64	New Liskeard	Station	1		
	"	Town Office	1	1	1
118.13	Uno Park	Station	1		
128.59	Earlton	Station	1		
138.49	Englehart	Station	1	1	1
	"	Yard	4		
	Cochrane	Yard	3		
			37	6	9

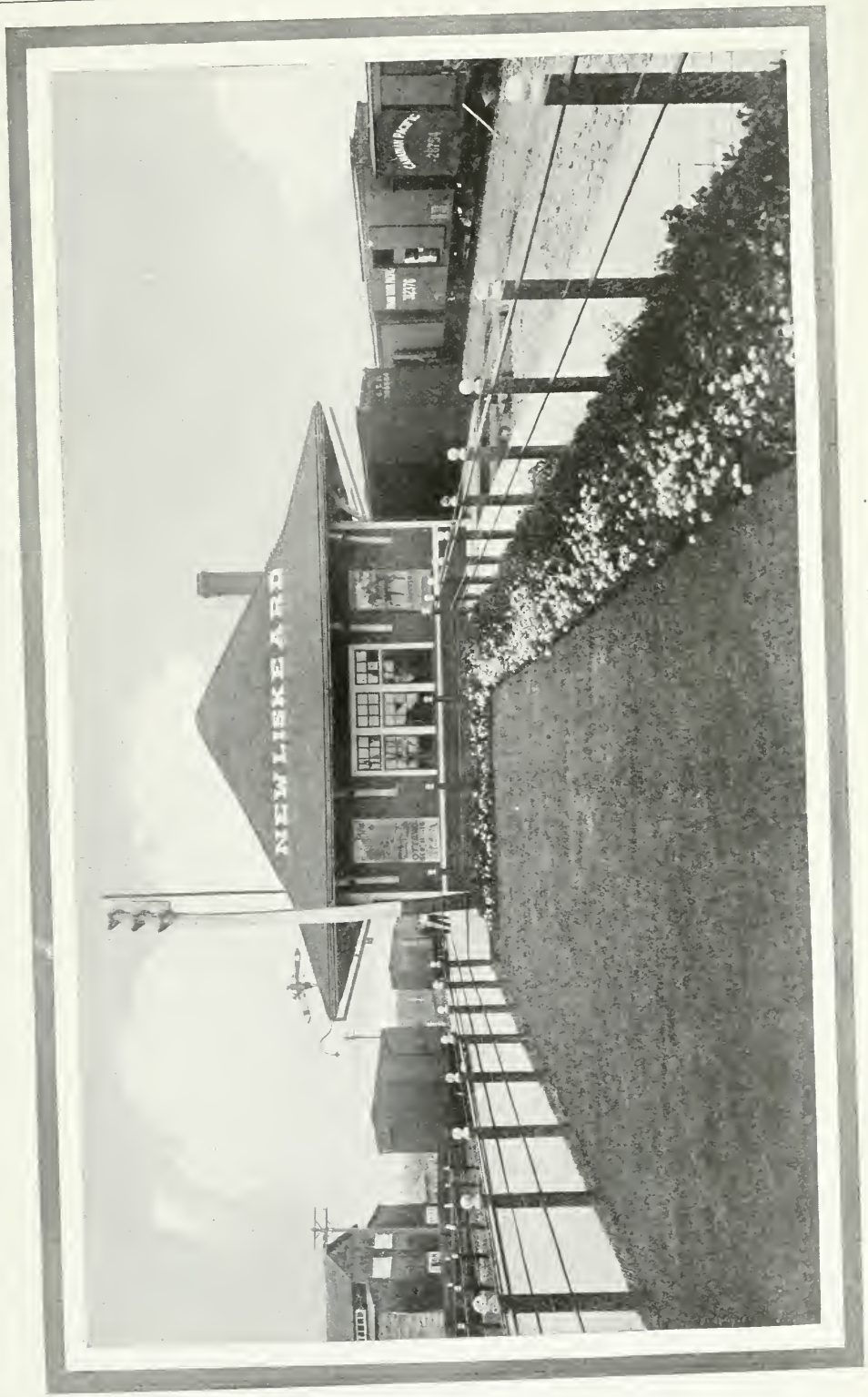
Total—43 Telephones.

Schedules of Switches and Instruments in Service, October 31st, 1911.

Mileage.	Place.	Building.	No. of sets Instruments.	Switches. No.	Switches. Size.
0	North Bay.....	Dispatcher's Office ...	5	1	10 line
0	N. Bay Jct.....	Yard Office.....	2	1	4 "
8.00	Woodland.....	Pit.....	1	1	2 "
13.52	Widdifield	Station.....	2	1	2 "
18.05	Mulock	Pit.....	1	1	2 "
18.05	"	.....	1	.....	.....
27.31	Tomiko.....	Station.....	2	1	6 "
39.84	Diver.....	"	2	1	4 "
55.54	Redwater.....	"	1	1	2 "
71.8	Temagami.....	"	2	1	10 "
94.13	Latchford.....	"	3	1	4 "
98.55	Gillies	"	2	1	2 "
102.8	Cobalt.....	"	2	1	4 "
	"	Town Office.....	3	1 duplex set	10–1 Inst.
	"	Broker's Office.....	1	1	1 line
105.69	North Cobalt.....	Station.....	2	1	2 "
107.44	Haileybury.....	"	3	1	10 "
	"	Town Office.....	4	1	4 "
	"	Broker's Office.....	1	1	1 "
112.64	New Liskeard.....	Station.....	3	1	10 "
	"	Town Office.....	2	1	2 "
	"	Broker's Office.....	1	1	1 "
118.38	Uno Park.....	Station.....	2	1	2 "
124.78	Thornloe	"	2	1	2 "
128.59	Earlton	Station.....	2	1	2 line.
134.93	Heaslip	"	2	1	2 "
138.48	Englehart	"	3	1	6 "
7.06	Charlton	"	1	1	2 "
159.74	Dane	"	2	1	2 "
164.7	Swastika.....	"	2	1	2 "
182.48	Bourkes.....	"	1	1	2 "
205.27	Matheson.....	"	3	1	4 "
224.87	Iroquois Falls	"	3	1	10 "
253.1	Cochrane	"	2	1	4 "
	Drinkwater.....	Pit	1	1	2 "
24.10	Porcupine	Station.....	4	1	10 "
	"	Broker's Office.....	1	1	1 "
26.7	So. Porcupine.....	Station	4	1	10 "
	"	Broker's Office.....	1	1	10 "
		Total.....	82	38	

Summary.

Instruments.	Switches. No.	Switches. Size.
82 Sets.	5	1 line.
	16	2 "
	7	4 "
	2	6 "
	8	10 "
	38	



New Liskeard Station.

BRIDGE AND BUILDING DEPARTMENT.

Annual Report, Year ending October 31st, 1911. W. J. Oldham, B. and B. Master.

North Bay.

General Offices.

The first and second floors of this building were cleaned and kalsomined. Additional shelving put in the different offices, and the attic fitted up for offices for the Traffic Accounting Department. The coal bin in the basement was extended so as to hold a carload of coal.

Freight Shed.

The office portion was equipped with offices and desks, and the freight portion was cleaned and partitions taken out. A covered transfer platform, 16 ft. wide, 400 ft. long is under construction. This building has never been used for freight purposes, but it will be used as local freight shed after December 3rd.

North Bay Junction.

Machine Shop and Roundhouse.

The roof of this building was gone over with a good coat of Carey's Tar Roof Paint. The interior of the building was whitewashed and the exterior washed with cement grout. Boilers Nos. 1, 2, and 3 were completely overhauled, new fire brick being used where it was found necessary.

Old Machine Shop.

It was found necessary to put 16 oz. tar paper over the entire roof of this building.

Coal Chutes.

The aprons of the chutes were equipped with cable and cast iron weights, and the approach trestle surfaced and lined.

Drop Pit.

A new truck drop pit was built in on the rip track.

Turntable and Cinder Hoist.

Cinder hoist and turntable were painted with Standard Steel-Grafo Paint.

Water Tank.

A new 60,000 gallon steel tank was erected on a foundation of four concrete piers built on the solid rock and a stand pipe put up in the most convenient location for watering engines.

STATIONS.

Trout Lake.

The approach to the south end of platform was raised 2 ft. 6 in., and three new steps built. The interior of building was painted.

Widdifield.

General repairs were made to station and platform.

Tomiko.

A small platform 10 ft. by 55 ft. was built at the Mill to accommodate the public there.

Diver.

A partition was put up between office and living apartments for the agent, and the heating system overhauled. A small building was moved to the back of the station to be used as a kitchen.

Redwater.

In order to heat the station more thoroughly the stove was moved from the office to the waiting room.

Temagami.

The counter in the restaurant was extended and the heating system in both the restaurant and the station overhauled.

Latchford.

In order to make more room for the agent, the partition was removed between the telegraph office and small room back of it, and the scales repaired and adjusted.

Gillies Depot.

Kitchen at this point has been remodelled.

Cobalt.

A new iron fence was built around flower garden. The Canada Railway News Co's. stand was rearranged to give them more room. A complete sewerage system was installed.

Haileybury.

General repairs were made to station and platform, and exterior painted.

New Liskeard.

A new deck put on platform, exterior of station painted, and a new battery room built.

Uno Park.

The exterior of the station was painted, a new kitchen 12 ft. by 14 ft. built to the station and woodshed 14 ft. by 20 ft. erected back of the kitchen.

Thornloe.

A new station was built by contract, and the old station turned into a freight shed.

Heaslip.

Platform straightened and outside of station painted.

Englehart.

The old store building was taken down and station painted. All drains from station were put in good working order. A pipe to carry off the fumes of the cooking from the kitchen was put in and carried out through the roof. A new concrete walk from the station to the King Edward Hotel was put down, also a concrete walk from the station to the Greenhouse.

Dane.

A new well was dug in connection with the station.

Matheson.

Owing to the building of a new station here it was found necessary to move the old one back and keep it in shape for the station staff.

FREIGHT SHEDS.

Feronia.

This building was straightened and the foundation put in good shape.

Latchford.

General repairs.

Cobalt.

The freight shed doors were all equipped with our Standard Barn Door Hangers and Tubular Track.

Haileybury.

The exterior of the old freight shed was painted, and a room 16 ft. by 16ft. partitioned off over the freight office of the new one for storing records.

Liskeard.

A small room was set aside for the use of the Supervisor of Telegraph and Telephones.

Thornloe.

The building was moved back in line with the new station and the exterior of it painted. The platform was lowered in order to be in line with the station platform.

Englehart.

The building was moved back, platform lowered and about 100 ft. added to it.

Swastika.

Our forces are at the present time putting an addition to this building in order to convert a portion of it into a station.

WATER SERVICE.

On May 1st, maintenance of the water service came under the Bridge and Building Department, and we have been looking after this end as well as the building end. All tanks were inspected regularly and repairs made where necessary.

Tomiko.

A new pipe line was put in from Tomiko Tank.

Cochrane.

An additional spout was put on the Cochrane Tank.

DWELLINGS.

Doherty.

A new brick chimney was built on section house.

Latchford.

A new chimney was built on Agent's house, and new floor put in kitchen.

Cobalt.

The Agent's and section houses were connected with the town water system, and new sinks put in.

Haileybury.

The exterior of the Agent's and section foreman's houses were painted.

Thornloe.

A new floor was put down on top of the old one, in section dwelling at this point.

Englehart.

The tenement house was cleaned and painted, and two rooms painted.

Charlton.

Verandah of section dwelling repaired and a woodshed 14 ft. by 20 ft. built at the back of it.

In all section dwellings from Englehart to Cochrane, the summer and winter kitchens were converted into one by sheeting the summer kitchen and cutting an arch out between the two. Woodsheds 14 ft. by 20 ft. were built at the back of each section dwelling and concrete floors put in the cellars of them all.

ROUNDHOUSES.

North Bay Junction.

See under North Bay Junction Terminals, Page 42.

Englehart.

A 14 in. eave projection was added to the roof of Englehart Roundhouse, and a coating of cement tar paint put on the roof. The walls were repaired and grouted with cement, and the interior whitewashed. The boilers in the boiler room were completely overhauled.

Cochrane.

The boilers at Cochrane were repaired, as well as the doors and windows.

MISCELLANEOUS BUILDINGS.

Englehart.

An upper story was added to the greenhouse for living quarters for gardener.

Coal chutes were surfaced and lined, new caps and bracing also put in.

Ash pit repaired, and new drainage system put in. The cinder hoist and turntable were repaired and painted.

A new four pen stock yard and hay barn 15 ft. by 16 ft. were built.

Matheson.

The engine shed at Matheson was taken down, loaded on cars, and shipped to Iroquois Falls, where the material was used on the Porcupine Branch.

Cochrane.

A new ash pit, and a cinder hoist erected. General repairs were made to coal chutes.

All new buildings were equipped with necessary fire protection, storm doors and windows and door screens, these being put in place in season.

PORCUPINE BRANCH.

Our forces built new station, temporary freight shed, residence and boarding camps for station staffs at Porcupine and South Porcupine.

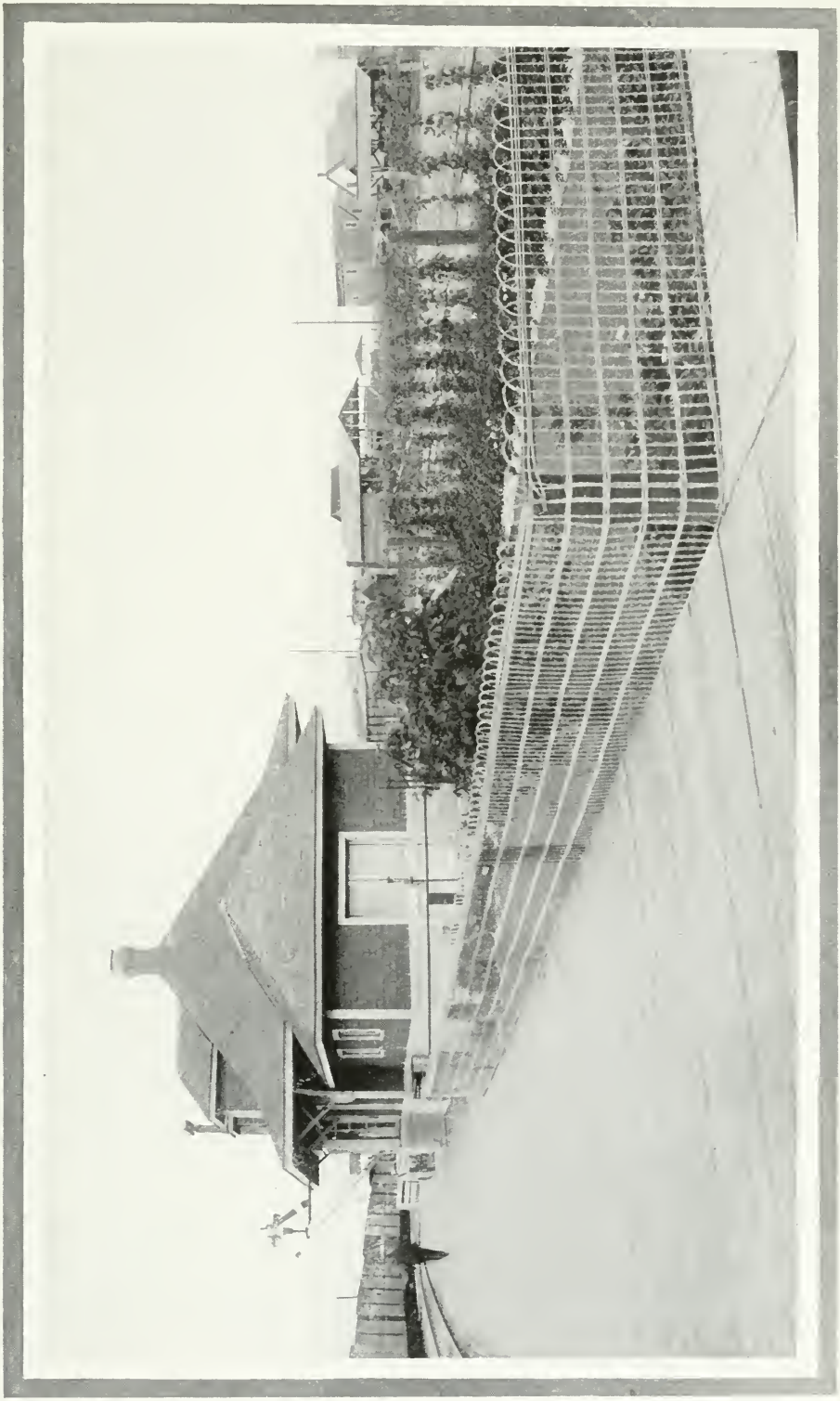
BRIDGES AND TRESTLES.

Bridge ..... 30.93.....Abutments were repaired.
Trestle..... 42.18.....Surfacing and lining, putting in caps and ties, and repairing bents.
Trestle..... 48.90.....Surfacing, lining, and replacing ties.
Trestle..... 53.84.....30 in. pipe were put in.
Trestle..... 55.36.....Surfacing and lining.
Trestle..... 57.31.....Surfacing and lining.
Trestle..... 58.75.....Surfacing and lining.
Bridge ..... 59.18.....Renewing deck.
Trestle..... 68.71.....New stringers, surfaced and lined.
Trestle..... 69.91.....New stringers.
Trestle..... 70.21.....New stringers.
Trestle..... 71.37.....Surfacing and lining.
Trestle..... 75.44.....Surfacing and lining.
Bridge ..... 93.87.....Deck renewed and guard rails put on.
Bridge.....115.75.....Guard rails put on, surfaced and lined.
Bridge .....119.13.....Guard rails were put on, surfaced and lined.
Trestle.....153.50.....Surfaced and lined.
Trestle.....162.8 .....Surfaced and lined.
Trestle.....163.13.....Surfaced and lined.
Trestle.....178.90.....Surfaced and lined.
Trestle.....196.80.....Surfaced and lined, new girths and braces put on.

CULVERTS.

Culvert..... .61.....Walls repaired.
Culvert..... 2.83.....Walls repaired.
Culvert..... 2.89.....Top repaired.
Culvert..... 4.83.....Walls repaired.
Culvert..... 11.12.....Walls repaired.
Culvert..... 11.18.....Top repaired.
Culvert..... 25.71.....Surfaced and lined and guard rails put on.
Culvert..... 35.74.....Surfaced and lined and guard rails put on.
Culvert..... 53.84.....New 30 in. concrete pipes were put in.
Culvert..... 58.26.....Stringers renewed.
Culvert..... 79.84.....Top was repaired.
Culvert..... 80.29.....Walls repaired.

Culvert..... 80.45.....Walls repaired.
Culvert..... 85.29.....Top repaired.
Culvert..... 98.88.....New 30 in. concrete pipe put in.
Culvert.....102.30.....New head walls were built.
Culvert.....104.90.....Walls repaired.
Culvert.....105.49.....Top repaired.
Culvert.....109.61.....Top repaired.
Culvert.....109.98.....Walls repaired.
Culvert.....119.15.....New concrete pipe.
Culvert.....119.20.....Walls repaired.
Culvert.....138.75.....Corrugated iron pipe put in.
Culvert.....161.50.....Walls repaired.
Culvert.....162.75.....Top repaired.
Culvert.....179.83.....Walls repaired.
Culvert.....181.75.....New bents and braces put in.
Culvert.....181.82.....Walls repaired.
Culvert.....195.60.....Top repaired.
Culvert.....196.75.....Walls repaired.
Culvert.....203.30.....Walls repaired.
Culvert.....204.25.....Top repaired.
Culvert.....204.90.....Top repaired.
Culvert.....205.25.....Walls repaired.
Culvert.....206.25.....Walls repaired.
Culvert.....241. .....New cedar culvert built.



Another view of North Cobalt Station.

ROAD DEPARTMENT.

Annual Report, Year ending October 31st, 1911. Wm. Young, General Roadmaster.

MAINTENANCE OF TRACK.

First Division, North Bay to Englehart.

The cost of maintenance about equal with that of last year in so far as rail and tie renewals are concerned, but cost of labor has increased, wages of sectionmen having been raised from $1.65 to $1.90 per day of ten hours.

The reballasting done during the past two seasons, with better grade of gravel ballast, has improved the roadbed in a marked degree, maintaining the track in better line and surface at the close of open season than any year since its construction.

Second Division, Englehart to Cochrane.

Tie renewals have doubled those of the previous year, no rail renewals yet being necessary, except for few breakages.

The roadbed now fairly well consolidated and reballasting of the past two years has greatly improved the roadbed, the track having been maintained in better line and surface than any year since its construction.

New Steel Rail Laid.

From M.P.	To M.P.	Miles.	Weight per yard.	Pattern.	Makers.
41.5	48.25	6.75	80 pounds.	A.S.C.E.	Algoma Steel Co. Year 1910

Rails Released.

41.5	48.25	6.75	80 pounds.	A.S.C.E.	Cammell, Sheffield, England, Year 1903.

No new steel was bought for renewals during the year, the above being work left over from last year.

The best of released rail, know as No. 1 quality, were used for renewing at other points in mainline and the second quality used for new sidings. In this way the mainline is given the benefit of new steel.

Steel Changed in Sidings.

Location.	Siding.	Lineal feet of rail.	Remarks.
North Bay Junct..	No. 4 & 5 through.	5,118	No. 1 quality taken out in order to secure sufficient steel for main line renewals: replaced by No. 2 quality 80 lb.
Haileybury	Town Spur.....	1,200	56-lb. rail replaced by heavier rail. No. 2 quality, 80 lb.
Englehart	Old freight shed siding.	594	60-lb. rail replaced by No. 2 quality 80-lb.

Rail Removed from Track. Account, Failures and Wear.

Description and Remarks.	No.	Lin. feet.	Make.
Clean break—cause unknown	46	1,506	Cammell.
	2	66	D.I. & S.
	9	297	Algoma.
Clean break—flaw in base and web	1	33	Cammell.
Broken base—caused by derailment	2	66	Algoma.
	76	2,508	Cammell.
Rail head—damaged by derailment	5	165	Cammell.
Rail damaged by derailment	2	66	Algoma.
	1	33	Cammell.
Burned by engine slipping	1	33	Algoma.
Flow of metal	2	64	Algoma.
	1	33	Cammell.
Half moon break in base	52	1,716	Cammell.
Old flaw in base	3	99	Algoma.
	3	99	Cammell.
Old flaw in web	1	33	D.I. & S.
	3	99	Algoma.
	4	128	Cammell.
Old flaw in base and web	1	33	Algoma.
Flaw in head, base and web	2	66	Cammell.
Flaw in head	1	33	Cammell.
Flaw in web and split head	1	31	Cammell.
Crushed head at ends	425	14,023	Cammell.
	2	66	Algoma.
Split head and crushed ends	40	1,320	Cammell.
Split head at end	2	66	Algoma.
	218	7,192	Cammell.
Crushed head	12	396	Cammell.
Split head	1	33	Algoma.
	64	2,101	Cammell.
Totals	983	32,404	

Cross Ties Used.

——	First and second quality.	Culls.
Renewals, First Division	66,961	2,074
" Second Division	12,975	.....
Extras, First Division	5,830	186
" Second Division	3,461	.....
New T. & N. O. Ry. Sidings	21,910	410
New private sidings	1,469	247
Renewals in private sidings	265	5
Totals	112,871	2,922

Switch Ties Used.

	Number of Sets.	
	No. 8 frog.	No. 10 frog.
Renewals, First Division	29	3
" Second "	4	.....
New T. & N. O. Ry. sidings	15	2
New private sidings	8	.....
Renewals in private sidings (B.C)	2	.....
Total	58	5

Set of switch ties for No. 8 frog or turnout contains 535 lineal feet of timber 7 in. by 9 in. and for No. 10 frog, 580 lineal feet.

Sidings Laid or Extended.

Location.	Description.	Purpose.	Service.	Length.
				feet.
Rib Lake ...	Gillies Bros. log siding	Lumber	Private	1,822
Cobalt.....	North Spur, extended into through siding.	Freight.....	T. & N. O ..	211
	A. N. Davis' coal siding	Coal.....	Private	291
Mileage 4½ Kerr Lake Branch. ..	Lawson Mine siding	Mining	Private	260
North Cobalt	Town spur, extended	Freight.....	T.&N.O....	39
	Siding connected with Nipissing Central Ry	Transfer	T.&N.O....	629
Liskeard ...	Town spur (Liskeard spur)	Freight.....	T.&N.O....	3,963
	Grant & Kennedy's siding	Lumber.....	Private	947
M.P. 115½...	Main line diversion, used in connection with slide at that point, extended	General.....	T.&N.O....	375
Englehart ..	Tail of wye, extended	Turning	T.&N.O....	66
	New freight shed siding	Freight	T.&N.O....	1,244
	Snow plow storage spur extension re new cattle pen	Live Stock....	T.&N.O....	465
Swastika ...	Swastika Mine Siding	Mining	Private	562
M.P. 175....	Sesekinika Lum. Co	Lumber	"	255
M.P. 213....	Homer Shed Siding	Freight	T. & N. O...	422
Kelso	New Through Siding	Supplies and freight	T. & N. O...	1,999
	Dome Mines Siding	Supplies.....	Private	612
	Town Spur No. 1	Freight	T. & N. O,..	820
	Town Spur No. 2	"	" ...	539
	Private Warehouse Spur	Supplies.....	Private	915
M.P. 224½...	Porcupine Ry Co. Spur, subsequently taken over by Construction Dept. as lead of Porc. Branch	General	T. & N. O,..	733
M.P. 227½...	Main Line Diversion	"	" ...	3,600
M.P. 229....	Through Siding	"	" ...	1,500
M.P. 229¼...	New Ballast Pit Main Spur	Ballast.....	" ...	6,091
	" " " Siding	"	" ...	1,179
Cochrane ...	Boiler Room Siding	Roundhouse...	" ...	628
	Shop Track	" ..	" ...	1,042
	Coal Chute Track	Coaling.....	" ...	1,260
	Union Depot Siding (Use of T.C.R. & T. & N.O.)	General	Union	451
	Coach Siding No. 1	Coach Storage.	T. & N. O...	795
	Coach Siding No. 2	Coach Storage.	" ...	520
	Coach Siding No. 3	Coach Storage.	" ...	498
	Northern and Ontario Light and Power Co.'s Siding Supplies	Supplies.....	Private.....	819
	Total	.....	.....	35,552

SIDINGS UNDER CONSTRUCTION AT END OF YEAR.

North Bay.

Nipissing Junction Spur being laid to connect T. & N. O. Yards at North Bay Junction with G. T. R. mainline at Nipissing Junction.

Several Sidings in North Bay Jct. Yard.

Sidings Taken up or Shortened.

Location.	Description.	Purpose.	Service.	Length.
M.P 98½	Through Siding. East Side—taken out.....	Freight..	T. & N. O.	2,930 feet
Cassidy	Old Ballast Pit Sidings—shortened.....	Ballast..	"	822
M.P. 101¼...	Dynamite Delivery Siding—taken out.....	Dynamite	"	300
Cobalt.....	Town Siding Spur—shortened.....	Freight..	T. & N. O.	192
	Old Freight Shed Spur—taken up.....	"	"	397
	South Spur—shortened.....	"	"	125
	O'Briens Through Siding—shortened.....	"	"	80
	Queen City Oil Co.'s Spur—shortened.....	Supplies.	Private..	3
	La Rose Mine Spur—shortened.....	Mining ..	"	142
M. P. 104¾..	Nipissing Central Railway Spur—taken out....	Supplies.	"	156
Liskeard ...	Old Freight Shed Spur—shortened.....	Freight..	T. & N. O.	90
M. P. 119.13.	Main Line Diversion, for general use in connection with new bridge constructed there in 1910—taken up.....	General..	"	1,790
M. P. 133¼..	Riordan Pulp Co.'s Siding—shortened.....	Pulpwood	Private..	30
M. P. 206¾..	South Wataybeag Ballast Pit—taken up.....	Ballast..	T. & N. O.	2,970
M. P. 217½..	Driftwood Spur—taken up.....	Freight..	"	376
Kelso	Dome Mines Spur—taken up.....	Supplies.	Private..	612
M. P. 227½..	Old Main Line at Diversion—taken out.....	General .	T. & N. O.	3,816
M. P. 228...	Old Pit Tracks—taken out.....	Ballast..	"	3,237
Cochrane ...	Temporary Spur in rear of Roundhouse—taken up.	Construction Shops.	Contractor.	794
	Total.....			18,862 feet

New Culverts under Roadbed.

Location.	Size.	Length.	Description.	Purpose.
North Bay Junction.	15 inches	90 feet	Corrugated Iron Pipe	Under new sidings.
	10 "	195 "	" " "	" " "
	8 "	120 "	" " "	" " "
	12 "	60 "	" " "	" " "
	30 "	150 "	" " "	" " "
Cobalt.....	8 "	180 "	" " "	Under tracks north of station.
Liskeard ...	30 "	90 "	" " "	Under main line—yard drainage.
M. P. 115½..	20 "	60 "	" " "	Under main line—replacing old wood culvert.
M. P. 116¼..	15 "	27 "	" " "	Under Main Line.
M. P. 116½..	30 "	30 "	" " "	" " "
M. P. 152...	12 "	30 "	" " "	" " "
M. P. 198½..	15 "	30 "	" " "	" " "
M. P. 198¾..	20 "	30 "	" " "	" " "
M. P. 199...	20 "	30 "	" " "	" " "
Matheson...	24 "	30 "	Concrete Pipe.....	Under Wye Siding.
Matheson...	24 "	30 "	" "	" " "
Cochrane ...	24 "	30 "	Corrugated Iron Pipe...	Under Main Line.
Total...	17	1,212 feet		

New Side Culverts.

Location.	Size.	Length.	Description.	Purpose.
North Bay Junction..	15 inches	330 feet	Corrugated Iron Pipe	Side ditches, drainage yard, new sidings.
	110 "	240 "	" " "	Side ditches, drainage yard, new sidings.
North Cobalt	20 "	72 "	Concrete Pipe	New public road crossing.
	12 "	72 "	Vitrified Pipe.....	" " " "
Haileybury .	8 "	30 "	Corrugated Iron Pipe	Yard drainage.
	15 "	30 "	" " "	" "
	20 "	72 "	Concrete Pipe	Crossing, Florence street.
Liskeard ...	10 "	360 "	Corrugated Iron Pipe	Drainage right of way.
	15 "	80 "	" " "	" " "
M. P. 115½..	30 "	260 "	" " "	" " "
M. P. 116...	10 "	60 "	" " "	" " "
Uno Park ..	15 "	90 "	" " "	" " "
M. P. 120...	30 "	30 "	" " "	" " "
M. P. 134¼..	30 "	60 "	" " "	Diversion public road.
Sesekinika..	30 "	30 "	" " "	Roadway to station.
	12 "	60 "	" " "	" "
M. P. 196½..	24 "	90 "	" " "	Drainage right of way.
	12 "	60 "	" " "	" " "
Matheson...	8 "	90 "	" " "	Fourth ave. street crossing
	12 "	72 "	" " "	" " " "
M. P. 217...	15 "	60 "	" " "	New public road crossing.
	20 "	60 "	" " "	" " " "
Iroquois Falls.	24 "	240 "	" " "	Drainage right of way in front of Sect. dwelling.
Total...	23	2,548 feet		

New Tile Drains.

Location.	Size.	Length.	Description.	Purpose.
North Bay Junction.	20 inches	60 feet	Corrugated Iron Pipe	Outlet yard drainage to Lake Nipissing.
	30 "	240 "	" " "	Outlet yard drainage to Lake Nipissing.
Gillies.....	4 "	272 "	Land Tile	Drainage Sect. dwelling.
Cobalt.....	6 "	20 "	Cast Iron Pipe	Station drainage.
Liskeard ...	4 "	1,600 "	Land Tile	Yard drainage in front of station.
M. P. 116...	6 "	1,280 "	Vitrified Tile	Underdrainage cuts.
M. P. 155-56	6 "	2,182 "	" "	" "
M. P. 213...	6 "	750 "	" "	Underdrainage in connection with new siding.
Total...	8	6,404 feet		

Right of Way Cleaned.

From M. P.	To M. P.	Total Miles.	Remarks.
101	113	12	All right of way and extra lands between these points cleaned of stumps, brush and rubbish, which was burned up.
123	131	8	
	Total miles...	20	

Right of way on Liskeard Spur as far as Haileybury Public Road. Right of way in Englehart near shops and Block "F" of Englehart Townsite also cleared of stumps, etc, as above.

STONE RIPRAPPING, EMBANKMENT PROTECTION.

At Cobalt Lake 1934 cubic yards of rip-rapping for protection of fill made by train in the year 1910. Stone was loaded by Samuel McGar, under contract from spoil banks at the mines, Cobalt.

Improvements to Roadways.

Location.	Purpose.	Remarks.
Cobalt.....	Station roadways	Coated with broken stone from the mines at Cobalt.
North Cobalt..	Township roads.....	35 cars gravel delivered at that point for township roads.
Haileybury ...	Freight shed and station roadways.....	Coated with broken stone from the Cobalt Mines.
Liskeard	Freight shed and station roadways.	Coated with broken stone from the Cobalt Mines.
Thornloe	Township roads.....	31 cars gravel delivered at that point for township roads.
Englehart	Village streets.....	38 cars delivered there.
"	Roadway to Pump-house at river bank.....	Graded and put in shape for wagons.
Swastika	Freight delivery	Roadway to new siding graded with 64 cars sand from Dane Pit.
Sesekinika....	Freight delivery	Roadway to station graded.
M.P. 213.....	" "	Roadway to new freight shed and siding graded.
Kelso	" "	Roadway to new sidings installed there for delivery of Porcupine freight, graded.
Cochrane	Town streets.....	7 cars gravel and 3 cars boulders delivered here for municipality.
"	Station roadway	Coated with gravel.

New Public Road Crossings.

Location.	Description.	Remarks.
M.P. 102¼.....	At Grade	Crossing to McKinley-Darragh Mine, over main line and two sidings.
Kerr Lake Branch. M.P. 3½	" "	Two sidings put in good shape.
North Cobalt..	" "	Just north of station, over the two main tracks.
Haileybury ...	" "	At Florence street crossing main line.
Liskeard Spur.	" "	Crossings at Haileybury and Liskeard public roads.
M.P. 134¼.....	" "	Diversion of public road allowance, crossing main line.
Matheson.....	" "	4th Avenue St. crossing. Considerable filling was necessary here, this being done by work trains.
M.P. 213.....	" "	Crossing main line.
M.P. 217½.....	" "	" " "

New Farm Crossings.

M.P. 115.....	At Grade	Farm crossing over main line.
M.P. 123¼.....	" "	" " " " "

Cattle Guards Installed.

Location.	Crossing sets.	Kind.	Remarks.
M.P. 102.....	½	Wooden slat.	To prevent stock from having access to right of way through Cobalt yard.
North Cobalt.	1	" "	For double track.
Haileybury ...	1	" "	" " "
Liskeard Spur.	½	" "	" single track.
M.P. 134¼.....	1	" "	" " "
Matheson.....	1	" "	" three tracks at 4th Avenue.
M.P. 217½.....	1	" "	" single track.

Ditching—Hand.

Location.	Length.	Remarks.
North Bay Jct.	1,200 feet.	Side ditch, new sidings.
M.P. 111¼.....	900 "	New ditch on top of clay bank.
Liskeard Yard.	2,550 "	Right of way ditch, cleaned only.
Liskeard Spur.	800 "	New ditch.
M.P. 115½.....	700 "	In connection with new side culvert at that point.
M.P. 116.....	2,157 "	Old ditches improved.
M.P. 117.....	600 "	Cleaned only.
Matheson.....	1,450 "	Right of way. Wye and park drainage.
M.P. 213.....	800 "	Drainage in connection with new siding installed at this point.
Kelso	1,000 "	Ditching necessitated by installation of new sidings at this point.
Nellie Lake...	300 "	Ditch from pumphouse cleaned only.

Ditching—Machine.

M.P. 109–113..	8,620 feet.	637 flat cars loaded, approximating 5,000 cubic yds. material.
M.P. 116–117..	2,500 "	108 flat cars loaded, approximating 800 yards earth.
Uno Park.....	400 "	12 cars muck or about 100 cubic yards. This material used for station lawns at New Liskeard.
M.P. 126–128..	2,650 "	129 cars or approximating 1,000 yards earth loaded.
M.P. 131–136..	3,400 "	230 cars or approximating 1,800 yards earth loaded at this point.
M.P. 146–157..	10,500 "	507 cars or approximating 4,000 yards lifted here.
M.P. 214–220..	8,000 "	288 cars or approximating 2,300 yards loaded here.

The above work was done by the "American" Railroad Ditching Machine bought from the American Hoist and Derrick Co., of St. Paul, Minn., in April of this year.

The material loaded in this way was used for widening main line embankments adjacent to points where loaded.

Clay Cuts Cleaned.

Location.	Length.	Remarks.
	feet.	
M.P. 5¼.....	400	Hand work.
M.P. 48.....	12	Clay and boulder slide, caused by heavy rains in April last. One car loaded. Hand work.
M.P. 111½.....	75	Machine work, 89 cars material lifted here. Clay land slide, caused by heavy April rains.
M.P. 148.....	90	Machine work. 45 cars material loaded here. Clay land slide, caused by heavy April rains.
M.P. 202–2–4.....	800	Hand work.

Land Slides.

Location.	Remarks.
M.P. 48.....	Slight slide in bank. Cause, heavy rains.
M.P. 102¼.....	Culvert washed out. Filled with gravel and cinders.
M.P. 111¼.....	Slide in clay cut on west side 6 feet deep by about 50 feet in length. Caused by heavy rains in April.
M.P. 115½.....	Slide at head of ravine, caused by spring freshet, roadbed slipped out under freight train, derailing same.
Englehart	Wooden box culvert washed out under yard sidings Nos. 1, 2 and 3, caused by spring freshet. This culvert was replaced by concrete structure during the summer, by B. & B. Dept.
M.P. 2–Charlton Branch...	Washout in roadbed, about 60 feet in length, caused by spring freshet. Filled with stone and cinders.
M.P. 151.....	Small rock slide. No damage done other than slight detention to passenger train No. 1.
M.P. 152½.....	Small rock slide. No damage done other than slight detention to passenger train No. 1.

Fences Repaired and Renewed.

Description.	Location.	Side.	Total miles.
Right of way	Between M.P. 2½ and 5	Both	5 Repaired.
" " "	" M.P. 17-18.....	"	2 "
" " "	" M.P. 101-102.....	"	2 "
" " "	" M.P. 105-106.....	"	2 "
" " "	Haileybury Station grounds	.....	.07 Renewed.
" " "	M.P. 111 to 130	Both	38. Repaired.
	Total miles fence repaired or renewed.....		49.07

New Fence Constructed.

Description.	Location.	Side.	Gates.	Total rods.
Boundary, 58 inch. woven wire.	Pit M.P. 17.....	West.	.....	120
Boundary fence "	M.P. 105-106	"	.....	30
" " "	M.P. 107.....	"	.....	80
Road crossing of running boards	M.P. 102, half crossing	.....	.....	3
" " "	North Cobalt complete crossing.....	.....	.....	6
" " "	Haileybury " "	.....	.....	6
Right of way 58 in. woven wire	Liskeard Spur.....	Both..	.....	160
Station lawn of iron pipe.....	New Liskeard.....	.....	.....	20
" close board....	New Liskeard.....	.....	.....	14
Boundary, 58 inch. woven wire around ex-lands	M.P. 111-112.....	West.	.....	78
Boundary, 58 inch. woven wire around ex-lands.....	Near North Wabis River bridge.....	.....	.....	74
Boundary of woven wire	Near diversion of public road crossing, M.P. 134¼.....	.....	.....	180
Right of way	Charlton	North.	.....	160
"	" Branch M. 5¾	"	.....	30
"	M.P. 194-203.....	Both..	20	5,717
"	M.P. 209-220.....	"	32	7,184
Boundary of woven wire.....	4th Ave. Street crossing, Matheson..	East..	.....	15
Road crossing or running boards	" " " ..	.....	.....	6
" " "	M.P. 217½.....	.....	.....	6
	Total rods.....	.....	.....	13,889

13,889 rods..... 43.4 miles.

Timber Bridges Filled.

Location.	Material.	Quantities.	Remarks.
M.P. 53.84	Ballast from pit M.P. 58½	204 flat cars, approximate 2,000 cubic yards.	Pile bridge 112 feet in length completely filled and deck removed.

Sags over filled trestles at M. P. 218½, 221 and 222¼, which were filled last year were raised to proper grade during year, necessary material being delivered from Wataybeag and Nellie Lake Pits.

Ballasting, Main Line.

From M.P.	To M.P.	Quantities & Description.	Cars.	From pit.	Total miles.
37¾	46	One flat car deep	1,089	M.P. 58½	8.25
46	69	Patching	300	"	23.
76¾	91	One flat car deep	1,881	Cassidy	14.25
92	104	Patching (extra)	383	"	12.
107½	116	One flat car deep	1,122	"	8.5
"	"	(extra)	187	"	
116	120	Patching	284	"	4.
152	169	"	255	M.P. 207½	17.
169	190½	One flat car deep	2,838	"	21.5
191	205	Patching	447	"	14.
212	223	"	237	"	11.
		Total miles			133.5

Widening Embankments—Main Line.

Between—		Cars ballast.	From pit.	Total miles.
M. P.	& M. P.			
37¾	46	392	M.P. 58½	8.25
46	69	430	"	23
77	83	340	" 78½ /	
83	88	297	" 86 \	14.25
76¾	91	226	Cassidy \	
152	169	210	Dane	17.
169	180	196	" }	21.5
169	190½	549	M.P. 207½ }	
191	205	59	" "	14.
216	244	510	" 229¼	28.
			Total miles	126

Embankments were repaired where necessary between mileages as above.

Main Track—Re-Surfaced.

M.P.	To M.P.	Main Line.		Sidings.	
		Average lift.	Total miles.	Average lift.	Total miles.
		inches.		inches.	
1	2	2	.25		
3	4	3.5	.25		
5	6	4.25	.5		
37.75	46	7	8.25	6	.6
76.75	91	8	14.25	6	.7
107.5	116	6	8.5	5	.5
116	120	6	1.75		In places only.
168.25	190.5	7	22.25	7	1,

Main Line Sidings.

From M.P.	To M.P.	Average Lift.	Total Miles.	Average Lift.	Total Miles.
217	222.25	10 in.	1.75	.....	In places only over filled trestles.
227.25	228.25	4 in.	1.	.....	
228.25	229.	.....	.....	8 in.	.28
		5.7	58.75	6.4 in.	3.08

Main Track Relieved.

From M.P.	To M.P.	Average distance moved.	Total Miles.
41.5	48.25	7.5 in.	6.75
77	91	9 in.	14.
168.25	190.5	5 in.	22.25
		7.1 in.	43.

Material Loaded at Ballast Pits.

Feronia Pit. Steam Shovel.

Purpose—	Cars.
Filling for Joint Terminals, North Bay Junction	2,179
Ballasting, Nipissing Junction Spur	578
Total	2,757

Mulock Pit. Steam Shovel.

Purpose—	Cars.
Ballasting, Nipissing Junction Spur	155
Ballasting, Joint Terminals, North Bay Junction	133
Total	288

Mileage 58½, Steam Shovel.

Purpose—	Cars.	
Ballasting main line and restoring embankments, first division	2,275	
Filling Bridge, M.P. 53.84	204	
Ballasting siding connecting with Nip. Cen. Ry., North Cobalt	36	
Ballasting new freight shed siding, Englehart	34	
Total	2,549	flats
Concrete gravel, Station sidewalk, Englehart	2	
Concrete gravel, cinder hoist, Cochrane, B. & B. Dept.	2	
Total	4	"Harts"

Mileage 58½, Gravel, Hand-loaded.

Purpose—	Cars.
Supplied B. & B. Dept. for repairs to columns in roundhouse, North Bay Junction	1 flat

Mileage 78½, Ballast, Steam Shovel.

Purpose—	Cars.	
Ballasting main line and restoring embankments to original width, main line, 1st division, Maintenance	353	

Mileage 86, Ballast, Steam Shovel.

Purpose—	Cars.	
Ballasting main line and restoring embankments to original width, 1st division, Maintenance	284	

Cassidy Pit, Gravel and Ballast, Hand-loaded.

Purpose—	Cars.	
Ballast supplied Nipissing Central Railway, North Cobalt, for repairing their electric lines	41	
Gravel, repairs to washout at culvert, M.P. 102¼	8	
Total	49	flats
Gravel supplied B. & B. Dept. for repairs to machine foundations, Englehart shops	2	"Harts"

Cassidy Pit, Ballast, Steam Shovel.

Purpose—	Cars.	
Ballasting main line and restoring embankments to original width, first division, Maintenance	4,254	
Ballasting town siding, Haileybury, Maintenance	22	
Ballasting through siding, Johnson, Maintenance	16	
Ballasting main line, diversion M.P. 115½, for use in connection with slide at bridge, same point	34	
Ballasting sidings, New Liskeard, Maintenance	36	
Ballasting cattle pen siding, Englehart	37	
Ballasting new siding for Grand & Kennedy, New Liskeard	24	
Ballasting Liskeard Spur	217	
Delivered at Thornloe for township roads	31	
Delivered at North Cobalt for township roads	35	
Delivered at Englehart for town streets	38	
Total	4,744	flats
Sand for Station roadway improvements, New Liskeard	4	
Sand for Ballasting, Haileybury Spur, Maintenance	1	
Gravel, supplied B. & B. Dept. for renewal of concrete culvert, Englehart yard	1	
Total	6	"Harts"

Dane Pit, Ballast, Steam Shovel.

Purpose—	Cars.
Filling and ballasting new siding, Swastika Mine, Swastika	308
Ballasting main line, Second Division, Maintenance	76
Restoring main line embankments, Second Division	333
Total	717

Wataybeag Pit, Hand-loaded.

Purpose—	Cars.
Gravel supplied town of Cochrane for street improvements	7
Boulders supplied Northern Ontario Light and Power Co., Cochrane	1
Total	8

Wataybeag Pit, Ballast, Steam Shovel.

Purpose—	Cars.	
Ballasting main line and restoring embankments to original width, also widening embankments, Second Division	4,322	
Filling for Fourth Avenue street crossing, Matheson	1,120	
Filling for new station platform, Matheson	15	
Gravel for concrete purposes, new station, Matheson	3	
Ballasting Homer shed siding, M.P. 213	8	
Ballasting Northern Ontario Light, Heat and Power Co.'s siding, Cochrane	18	
Gravel supplied Northern Ontario Light and Power Co., Cochrane, for concrete purposes	12	
Total	4,498	
Station roadway improvements, Cochrane	2	
Gravel supplied Northern Ontario Light and Power Co., Cochrane, for concrete purposes	2	
Total	4	"Harts"

Nellie Lake Pit, Ballast, Steam Shovel.

Purpose—	Cars.
Ballasting Northern Ontario Light and Power Co.'s siding, Cochrane	17
Ballasting main line and widening embankments, Second Division	510
Filling station grounds, Cochrane	51
Filling for pit tracks, above pit	155
Total	733

Nellie Lake New Pit, Hand-loaded.

Boulders supplied town of Cochrane for street improvements	3

Nellie Lake Old Pit, Hand-loaded.

Ballasting and filling new sidings, Kelso, to take care of Porcupine freight traffic	246
Ballasting approach to bridge, M.P. 217¾	5
Refilling filled trestle, M.P. 222¼	51
Refilling filled trestle, M.P. 218½	75
Ballasting coal chute siding, Cochrane	103
Ballasting Porcupine Railway siding, M.P. 224½, later taken over as lead of Porcupine Branch	29
Ballasting Dome Mine Spur, Kelso	26
Total	535

Cinder Ballast, Loaded.

North Bay Junction.

Purpose.	Where unloaded.	Cars.
Ballasting First Division	Main Line	15
Sink Hole	M.P. 45½	4
Ballast	M.P. 50¾	3
Sink Hole	M.P. 52	7
Culvert	M.P. 58.26	1
Sink Hole	Bushnell Siding	14
Ballasting Yard	Riddle	1
" "	North Bay Junction	1
Spread around Operator's shack at pit	M.P. 58½	1
Spread around Station building	Greys	1
Tile Drainage	M.P. 116	13
New road crossing	M.P. 134¼	1
Station grounds improvement	Cochrane	1
Roundhouse grounds	Cochrane	2
	Total	65

Redwater.

Sink Hole	M.P. 45½	2

Cassidy Pit.

Coating Station grounds	Heaslip	4

Kerr Lake Junction.

Celvert renewals	M.P. 102¼	1
Ballasting Lawson Mine Siding	Kerr Lake Branch	1
Stop Block McKinley Darragh Mines Siding	" "	1
Stop Block terminal sidings	"	1
Ballasting Yard sidings	"	5
Ballasting main line	" Branch	3
Bridge approaches M.P. 4	" "	1
	Total	13

Englehart.

Ballasting Second Division	Main Line	50
Repairs at washout	M.P. 162½	1
New culvert	M.P. 140	2
Bridge approaches	M.P. 163¾	2
Tile drainage	M.P. 155.6	16
Repairs at washouts in yard	Englehart	10
Renewal culvert in yard	"	9
Spread around Artesian wells	"	2
Greenhouse purposes	"	2
Flower beds	"	1
Stores Building grounds	"	1
Cattle-pen grounds	"	6
Town sidewalk	"	4
Ballasting tracks	Charlton	5
Station grounds improvements	"	8
Repairs at washout M.P. 2	" Branch	8
New station	Matheson	2
Station grounds improvements	Cochrane	13
Tile drainage	M.P. 132	3
Bridge approaches	M.P. 119.13	9
Repairs washouts at culverts	M.P. 102¼	1
	Total	155

Wataybeag Pit.

Tile drainage	M.P. 213	12

Cochrane.

Approach to coal chutes	Cochrane	4
Ballasting new coal siding	"	18
Roundhouse grounds improvement	"	25
Station grounds improvements	"	5
Ballasting south from Cochrane main line	Main Line	4
Ballasting through siding	Wicklow	2
	Total	58

Miscellaneous Materials Handled by Work Trains.

Material.	Purpose.	Cars.	
		Loaded.	Unloaded.
Ties	Tie renewals	204	236
"	New sidings at Kelso	22	25
"	Diversion of main line M.P. 115½	2	2
"	New ballast pit, M.P. 229	12	8
"	Swastika Mines Spur	2	2
"	Pit tracks, Cassidy Pit		1
"	Homer shed siding M.P. 213	1	1
"	Ties, new shed siding, Englehart	2	2
"	Pit sidings, Feronia Pit	2	2
"	Joint terminal siding, N.B.J		2
Rails	New sidings, Kelso	4	3
"	Mainline diversion, M.P. 115½	1	1
" and fstgs	Pit sidings, new pit M. 229	12	7
"	New Spur, Swastika Mine, Swastika		1
"	New Liskeard Spur		1
" and fstgs	Homer shed Sidings M.P. 213		1
"	Rail renewals, first division	40	15
" and fstgs	Porcupine Railway siding, M.P. 224½. This siding taken over as lead of Porcupine branch	1	4
"	Pit tracks, Cassidy Pit		1
Cinders	Ballasting main line, 2nd Division		2
"	Ballasting Main line, 1st Division		3
"	Tile drainage M.P. 116		5
Stone	Northern Ontario L. & P. Co., Cochrane	1	1
"	Building stone for new station, Matheson	35	35
Silver ore	Wrecking, M.P. 66½	1	
Coal	Station supply, Liskeard		1
Culvert piping	Drainage cuttings, 1st Division		1
Fence material	New right of way fence, 2nd Division		1
Black muck	Station lawns, 1st Division	5	
Timber	Culverts under new sidings, Kelso	1	1
"	Culverts under Dome siding, Kelso	1	1
	Total	349	366

Material Handled by "American" Railroad Ditching Machine.

Material.	Purpose.	Cars. Loaded.	Cars. Unloaded.
Clay	Cleaning clay cuts first division, material used for widening embankments	1,192	1,156
Clay	Station yard and roadway improvements, New Liskeard	.....	48
Clay	Cleaning clay cuts and widening dumps on New Liskeard Spur	116	94
Clay	Widening embankments main line, first division	.....	10
Clay	Cleaning clay cuts second division, material thus loaded used for widening embankments	840	840
Stone	Cleaning rock cuts second division	30	.....
Stone	Protecting embankments second division	.....	14
Stone	Filling for Swastika Mine Siding, Swastika	.....	16
Stone	Protecting embankments first division	.....	16
Stone	Riprapping embankments Cobalt Lake	24	24
Stone	Filling landslide at bridge M. 115½	20	20
Stone	New station, Matheson	9	9
Black muck	Station lawn and flower bed, Liskeard	12	12
Cinders	Ballasting, first division	1	1
Cinders	Repairs at washouts M.P. 115½	12	12
Rails	Rail renewals, first division	30	30
Rails	Construction Porcupine Branch	13	.....
Rails	Rail renewals second division	5	.....
Ties	Joint terminal sidings, N. B. J.	13	12
Rails and fastenings	" " " "	14	11
Ties	Nipissing Junction Spur	29	15
Rails and fastenings	" " "	10	7
Fence material	Fence Nipissing Junction Spur	2	.....
Track material	New siding for McKnight & Jones, New Liskeard	1	2
Fence material	New road crossing M. P. 217½	.....	1
Bridge timber	Bridge repairs	3	.....
Switch ties	Tie renewals, first division	2	2
Telegraph poles	Transhipping freight	1	.....
Bit coal	Coal for Locomotives	10	.....
	Total	2,339	2,340

Miscellaneous Materials Handled by Hand.

Material.	Loaded at	Unloaded at	Purpose.	Cars.
Black muck	Englehart	Cobalt	Station lawns	7
" "	"	Haileybury	Flower beds at station	6
" "	"	Liskeard	" " "	7
" "	"	Englehart	Greenhouse uses	12
" "	"	"	Flower beds at station	18
" "	"	M. P. 1, Charlton Branch	Clay cutting	2
*Rock	Cobalt	Cobalt	Riprapping embankment at Cobalt Lake	55
* "	"	"	" " " "	21
* "	"	"	Station flower beds	1
* "	"	Kerr Lake Branch	Stop block at McKinley Siding	1
* "	"	" "	Road crossings	3
* "	"	Haileybury	Station grounds and Roadway	21
* "	"	Liskeard	" " "	11
* "	"	Englehart	Renewal of culvert in yard	1
		Total		165

* Loaded under contract.

COCHRANE FIRE, JULY, 1911.

1. Smouldering Ruins in vicinity of the Mayor's Hardware Store.
2. Fire along North Boundary of Town.

COCHRANE FIRE, JULY, 1911.

1. Fire along Glackmeyer to North of Town of Cochrane.
2. Corner Sixth Avenue and Fourth Street. Some buildings escaped for a time, to be finally overtaken by change of wind.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY.

OFFICE OF THE SUPERINTENDENT OF TRAFFIC.

Annual Report, Year ending October 31st, 1911.

The fiscal year ended October 31st, 1911, from a traffic standpoint, has been successful, as noted in financial statements attached.

The following accidents and derailments occurred, but thankful to report, we have been free of accidents of a serious nature. Every appliance of proved value calculated to secure safety, has been adopted and every precaution taken in handling of trains.

The Standard Rules adopted by the Dominion Railway Commission, for the uniform operation of trains (referred to in report ending Oct. 31st, 1910, page 35), became effective May 15th.

The following list of accidents and derailments occurred during the year:

1910.

November 10th, Train No. 12, at Latchford, struck steer; broke hind leg.

November 16th, Extra 106, entering Kelso yard limits, killed pig. Owner, Alex. Kelso, Kelso, Ont.

November 16th, Fred Williams, while lighting lamps outside North Cobalt Station, fell from ladder, spraining ankle and injuring his back.

November 18th, Train No. 46, M.P. 112, struck runaway team, owned by Mrs. Maloney, killing one horse and damaging sleigh.

November 19th, Extra 123, at M. P. 200, killed pig. Owner unknown.

December 1st, Albert Loney, fireman, alleged rupture, while raking out fire box, engine 116, M. P. 200.

December 12th, Train No. 1, M. P. 247, alleged to have struck and killed cow. Owner, P. Burns & Co., Cochrane, Ont.

December 13th, J. Fostichine, a Swede, instantly killed at Otter, Train No. 35, while attempting to board train No. 2.

December 13th, at Englehart, G. T. Refrigerator, No. 41243, caught fire, caused by heater in car exploding, badly damaging contents (groceries) and slightly burning car.

December 14th, Train No. 54, M. P. 3½, Kerr Lake Branch, alleged to have struck and killed pig. Owner unknown.

December 17th, Car N. & W. No. 3072, derailed M. P. 93, account broken flange.

1911.

January 7th, at Haileybury, F. G. E. Refrigerator car, No. 21937, caught fire, damaging contents (vegetables), slightly burning car. Caused by heater exploding.

January 7th, at Cobalt, Engine 110 alleged to have struck J. H. McCauley, breaking his arm.

January 18th, at Haileybury, train No. 13, Miss Margaret Hayes, while attempting to get off moving train after seeing a friend off, fell between coach and platform, jamming foot, necessitating amputation. (Died in New Liskeard Hospital Jan. 25th, 1911.)

January 23rd, at Kelso, John Campbell, while getting off train No. 1, after boarding train in attempt to locate some passenger, fell and broke collar bone.

January 28th, at Englehart, Brakeman Ross Dodds, slightly injured by piece of coal falling from tender. Resumed duty February 2nd.

February 7th, Car G. T. P. No. 300375 left rails at M. P. 26, falling crossways on track. Auxiliary called from North Bay Junction.

February 8th, while coupling cars at Cobalt, Brakeman I. H. Crabbe had left hand caught, smashing little finger.

February 11th, Train No. 7, M. P. 104, alleged to have struck and instantly killed Calman Simonstein.

February 11th, Extra No. 133, Tomiko, alleged to have struck two pigs.

February 16th, G. T. Parlor-Cafe Car No. 2606, Train No. 46, caught fire. Estimated damage $10.00. Cause unknown.

February 21st, Train No. 47, Otter, alleged to have struck and killed pig. Owner, Sectionman Isador Chaput.

February 28th, John Bell, of Arnprior, Ont., while walking on track at Johnson, was struck and instantly killed by Train No. 1, Engine No. 112.

March 15th, Brakeman Deeley, while trying to run engine No. 110 around train at New Liskeard, backed into coach No. 106. Estimate of damage to engine No. 110, $400.00; coach No. 106, $225.00. Brakeman Deeley dismissed, and remainder of train crew suspended.

March 16th, while Extra 105 pulling out of siding at Iroquois Falls, G. T. 17876, containing groceries, left rails and swung out, falling on its side. Auxiliary ordered from Englehart. Damage estimated at $215.00.

March 31st, at Kelso, Brakeman D. Bush fell between cars, spraining both ankles.

March 31st, at Haileybury, Brakeman L. Irish, fell off box car, breaking ankle.

April 24th, Train No. 46, engine 113, at M. P. 1½, alleged to have struck and killed two head of cattle. Owner, Wm. Milne & Son, North Bay, Ont.

April 28th, unknown man of unsound mind jumped off train No. 1, M. P. 226. Taken in charge by Section Foreman and Provincial Authorities notified. Sustained no injuries.

May 21st, while distributing poles on Porcupine Branch, stake broke on car, allowing poles to roll off, breaking leg of Arthur Charron.

May 21st, Chas. Forsythe, Steam Shovel Engineer, while attempting to step from van to tender of engine 109, fell, left leg being taken off, resulting in death, New Liskeard Hospital.

May 25th, Train No. 46 alleged to have struck and killed a moose, M. P. 34.

May 25th, Train No. 2, engine 108, M. P. 146, alleged to have struck and killed cow belonging to D. M. Forrester, Krugerdorf, Ont.

June 7th, August Bytin found one mile north of Englehart with several bones broken and fractured skull. Taken to New Liskeard Hospital and afterwards recovered.

June 14th, at Cassidy, Brakeman J. Holland, while running to open switch, train No. 1, fell, cutting his face slightly.

June 16th, Extra 135, south, M. P. 34, derailed eight flats containing logs; badly damaged. Cause, broken wheel T. & N. O. 60521. Train No. 47 delayed four hours. Injury to persons nil.

June 21st, at Matheson, north extra 125, struck and instantly killed Melville White, of Matheson, Ont.

July 5th, Train No. 53, M. P. 105, alleged to have struck and killed cow. Owner, E. J. Hermiston, North Cobalt, Ont.

July 7th, Brakeman J. A. Beaudet, while attempting to board train No. 51, North Cobalt, was knocked off by truck on side of platform, sustaining injuries to face and back.

July 12th. At Johnson, Brakeman A. Lefebvre, struck by cable stretcher, knocking him off car. Sustained severe scalp wound, which resulted in death, at Latchford, same date.

July 17th, Emile Michelson fell off train No. 1, M. P. 70½. Picked up later by train No. 49 and taken to Cobalt. Sustained dislocated shoulder, broken collar bone and severe shaking up. Confined to hospital thirty-two days.

July 19th, Train No. 1, engine 135, entering Uno Park yard limits, alleged to have struck five head of cattle, owned by A. D. Hermeston, Uno Park, Ont., killing three.

July 22nd, Extra 118, south, entering Temagami yard limits, alleged to have struck and killed cow. Owner, Jos. Perrin, Temagami.

July 28th. Extra 115, M. P. 222, alleged to have struck and killed cow. Owner, J. Godin, Kelso, Ont.

July 28th, Joseph Saunders, New Liskeard, leg crushed by lumber in car G. T. 26993, account rough shunting.

July 29th, Engine 133 derailed at Feronia Siding. Brakeman Geo. Ferrier suspended ten days for throwing derail.

August 11th, Train No. 47, engine 114, at M. P. 136, alleged to have struck and killed heifer. Owner unknown.

August 14th, Thos Gallagher, Cochrane, Ont., hurt about the face while jumping on and off Train No. 1.

August 16th, Engine 152 collided with Engine 134, North Bay Junction, slightly damaging foot board on Engine 152.

August 16th, Extra 115, Cars C. P. 57186 and G. T. P. 304701 derailed M. P. 66½. P. Labelle and Napoleon Gaund, who were riding between cars, injured, the latter dying in New Liskeard Hospital Aug. 21st. Injuries to Labelle not serious.

September 4th, Car G. T. 9231 destroyed by fire at Heaslip. Damage to contents (groceries, etc.) estimated at $2,600.00. Cause unknown.

September 12th, at Heaslip, train No. 53, alleged to have struck cow belonging to Robert Bond, breaking her leg.

September 21st, at South Porcupine, J. McIntee, of Cobalt, struck and instantly killed by train during the night. Inquest deemed unnecessary.

October 2nd, Train No. 1, Engine 113, M. P. 109¼, alleged to have struck and killed cow belonging to E. A. Provost, Haileybury, Ont.

October 6th, Train No. 51, M. P. 123, picked up man named J. J. Rooney, who died shortly after, as a result of falling off train No. 9. Inquest deemed unnecessary.

October 6th, Extra 102, South Gillies, ran into a herd of cattle, killing one. Owner, J. Jenkins, South Gillies, Ont.

October 16th, Extra 130, M. P. 214¼, alleged to have struck and instantly killed horse. Owner, M. A. Attallah, Matheson, Ont.

October 19th, Train No. 5, engine 110, M. P. 106½, alleged to have killed two small pigs. Owner unknown.

October 24th, Train No. 1, M. P. 14½, struck and alleged to have killed two sheep belonging to A. New, Widdifield, Ont.

October 31st, Engine 101 with van, collided with coal car at Mulock Siding, doing damage to extent of $154.00. Engineer Filiatrault and Fireman Gentile each suspended twenty days.

On July 1st, 1911, Porcupine Branch, extending from Iroquois Falls to Porcupine, a distance of 24.1 miles, was taken over by the Operating Department and stations at Iroquois Falls and Porcupine were opened for handling of freight, passenger and telegraph business.

On August 14th line completed for an additional 2.6 miles and South Porcupine station opened for freight, passenger, and telegraph business. Subsequent to disastrous fires in Porcupine district on July 11th, considerable congestion occurred at Porcupine and South Porcupine stations, but glad to report normal conditions now prevail.

On August 11th, owing to the increased traffic to and from the Swastika Mining district, station was opened and equipped for handling of freight and passenger traffic, railway and commercial telegraph.

On September 17th Kelso Station was closed, owing to traffic destined Porcupine Camp, and formerly routed via Kelso, being carried direct to Porcupine or South Porcupine, via Iroquois Falls.

Telegraph business, particularly subsequent to May 31st, exceptionally heavy and telephone service Englehart to Cochrane was discontinued and wires utilized for telegraph. Two additional wires, North Bay to Englehart, now under construction, and when completed, will materially relieve the overcrowded wires. No serious delays have occurred in handling of telegraph and telephone business outside of ordinary wire troubles.

Necessary time-table changes have been made to meet summer and winter traffic requirements. Time-table No. 19, made effective April 30, 1911; time-table No. 20, effective June 25th, and time-table No. 21, effective Sept. 17th Effective June 25th, trains Nos. 48 and 49 were run with interline connections over the Grand Trunk and T. & N. O. and discontinued Sept. 17th. Present time-table effective, shows trains Nos. 1 and 2 daily between North Bay and Cochrane. Trains Nos. 46 and 47 daily between North Bay and Englehart, with interline service over G. T. R. to Toronto. Local passenger traffic between stations, Latchford to Englehart inclusive, is taken care of by trains Nos. 4, 5, 6, 7, 8, and 9, and passenger traffic between Cobalt and Kerr Lake, by trains Nos. 34 and 35, daily except Sunday, and trains Nos. 73 and 74, Wednesdays and Saturdays only. Trains Nos. 23, 24, 25, and 26, run on Charlton Branch daily, except Sunday, and make close connections at Englehart with all main line trains.

Every attention is given to cleanliness of passenger cars and stations.

Attach herewith reports from Dr. McMurchy, North Bay; Dr. Fisher, New Liskeard; and Dr. Lowery, Englehart, covering medical attendance.

Report of Dr. A. McMurchy.

I am pleased to have to make a very brief report and to congratulate the Company on the freedom from serious accidents to employees during the past year.

The following are the only cases which came under my care:

Section foreman, fractured leg. Recovered.
Shop employee, arm seriously lacerated. Recovered.
Blacksmith, piece of steel penetrated wrist. Recovered.
A man was struck by a train at M. P. 66 and so seriously injured that he died in New Liskeard Hospital.
Another man injured at the same time received serious wound in head. Recovered.

Report of Dr. R. C. Lowery.

I beg to submit to you herewith number of cases, both surgical and medical, attended to by me during the year ending October 31st, 1911.

(1) Medical—	
Pneumonia	5
Cystitis	4
Appendicitis	1
Tonsilitis	5
Smallpox	3
(2) Surgical—	
Fractured arm	2
Fractured leg	1

There were also a large number of minor complaints as lumbago, bronchitis, neuralgia, etc., which I treated, also minor injuries, as sprains, cuts and bruises, which I have not considered necessary to tabulate in above list.

The small-pox cases developed in other parts, but when recognized here, were immediately quarantined by the local Board of Health, and by adopting rigid isolation and disinfection, no further cases developed.

Report of Dr. A. J. Fisher.

I herewith submit my medical report for the New Liskeard Division, year ending October 31st, 1911.

Month.	Consultation and Medicine at Office.	Dressings.	Visits.
November, 1910	16	10	20
December, 1910	10	8	7
January, 1911	8	12	10
February, 1911	12	9	12
March, 1911	19	13	16
April, 1911	11	7	9
May, 1911	15	8	10
June, 1911	30	20	38
July, 1911	20	10	7
August, 1911	13	8	8
September, 1911	14	6	20
October, 1911	30	12	20
Total	198	123	167

Number of Visits out of Town..... 24

Major Operations.

1 fractured pelvis, ruptured urethra and bladder.
1 fractured skull.
1 fractured leg.
1 fractured leg and dislocation.
1 amputation of thigh.

New Ontario in Embryo.

NIPISSING CENTRAL RAILWAY COMPANY

NIPISSING CENTRAL RAILWAY.

ANNUAL REPORT—CHIEF ENGINEER.

Period Ending October 31st, 1911.

General.

The Nipissing Central Railway Company was incorporated under the Dominion Charter in the year 1907. It owns and operates a line of electric railway between Cobalt and Haileybury, having a total length of 5.15 miles. The railway is located, in part, on its own right-of-way, and elsewhere on the streets and highways of the Township of Bucke, and the Town of Haileybury. Agreements were entered into with each of the above municipalities, providing for the operation of an electric street railway.

The T. N. O. Railway Commission having purchased the capital stock of the Nipissing Central Railway on June 21st, the Nipissing Central Railway was placed under the management of the general officers of the T. & N. O. Railway. The affairs of the two Railways are quite kept separate. There is a local Superintendent and Cashier in charge of the Nipissing Central Railway, reporting to the appropriate officials of the T. & N. O. Railway.

Route.

The Cobalt terminus is at the foot of Argentite Street. The location is in a general north-easterly direction from Cobalt, on private right-of-way on the west side of the T. & N. O. right-of-way, crossing the latter by an overhead crossing at Argentite, thence along the Cross Lake Road to the Townsite of North Cobalt, thence along King Street, Lakeview Avenue, and Main Street, thence across private right-of-way to Georgina Avenue, Haileybury, thence northerly along Georgina Avenue to Blackwell Street, easterly along Blackwell Street to Ferguson Avenue, northerly along Ferguson Avenue to Browning Street.

Service.

A regular half hour service is maintained between Cobalt and Haileybury from 6 a.m. to 11 p.m. At rush hours and on holidays the service is increased as may be necessary to accommodate the traffic.

Rolling Stock.

The following rolling stock was taken over with the Nipissing Central Railway:

3 42-foot double truck closed passenger coaches, each equipped with 40 h.p. motors, air and hand brakes, air whistle, arc headlamps, pilots, snow flangers, traffic recorders, and all necessary appliances necessary for an up-to-date electric trolley system.
1 combination baggage and passenger car, equipped with appliances similar to passenger coaches referred to above.
2 trailers of the same composition as the coaches, but having, of course, no motors.
1 four-wheel van.
2 thirty-foot flat cars.
1 small industrial standard gauge locomotive.

The locomotive referred to being practically of no use to the Nipissing Central Railway, was disposed of to advantage, brought down to North Bay Junction, where it is at present undergoing a general repair, in the T. & N. O. Shops, at the request of the firm purchasing same.

The other equipment referred to is all at present in very good condition, some slight repairs having been made to the passenger coaches; air brakes inspected and necessary overhauling done during the months of September and October.

Buildings.

The only buildings in connection with the Nipissing Central Railway are the car barn, which is situated between Haileybury and North Cobalt, and an office and waiting room. The car barn is a galvanized iron structure 150 feet by 60 feet, being 20 feet high at the eaves. A single track runs into this building which branches off into three, one track running over an inspection pit. Considerable repairs were made during the summer months to the roof of barn, rendering it in good serviceable condition.

The sub-station located in car barns consists of two motor generator sets of 400 H. P. and 200 H. P. capacity respectively.

Transmission System.

Power is obtained from the British Canadian Power Company's sub-station at Cobalt. A 2,200-volt transmission line connects the Power Company's sub-station with the Nipissing Central Railway sub-station in the car barns at North Cobalt. Another transmission line connected the sub-station at North Cobalt with power plant of the High Falls Power Company, but this transmission line is not in use, as the High Falls Company is not operating.

The trolley wire is No. 000 grooved section and, having no feeders, carries all the current used. The overhead system is composed of span wire type, with the exception of eighteen pole lengths of bracket type.

Roadbed.

The roadbed was never properly ballasted and some heavy expenditures for ballast will be necessary in the coming year.

Extensions.

An extension of the Nipissing Central Railway from its present terminus, Browning Street, Haileybury to New Liskeard, also a freight spur to the Government Wharf and Foster's Mill, are under consideration. Surveys for these have been completed, and negotiations are now being carried on for the necessary franchises from the towns of Haileybury and New Liskeard, and Township of Bucke.

NIPISSING CENTRAL

STATEMENT OF EARNINGS AND EXPENDITURES—

	June 21st to July 31st.		August.	
RECEIPTS—				
I. Revenue from Transportation—				
Passenger Revenue	.....	$7,752 26	.....	$5,602 15
Baggage Revenue	.....	1 25	.....	2 55
Parlor, Chair and Special Car Revenue	.....	25 00	.....	20 00
Switching Revenue	.....	.....	.....	46 00
Miscellaneous Transportation Revenue	.....	.....	.....	.....
Total	.....	7,778 51	.....	5,670 70
II. Revenue from Operations other than Transportation—				
Miscellaneous	.....	9 00	.....	.....
Total	.....	9 00	.....	.....
Total Revenue	.....	7,787 51	.....	5,670 70
EXPENDITURES—	Per cent.		Per cent.	
I. Maintenance of Way and Structures.	8.5	664 38	8.9	503 67
II. Maintenance of Equipment	.6	49 22	7.5	423.10
III. Traffic Expenses	.5	40 00	.5	30 00
IV. Transportation Expenses	31.9	2,483 81	29.7	1,682 71
V. General and Miscellaneous	1.	75 48	4.2	239 42
Total Operating Expenses	42.5	3,312 89	50.8	2,878 90
Balance	.....	4,474 62	.....	2,791 80
Other Income—				
.....	.....	.....	.....	.....
Deductions from Income—				
.....	.....	.....	.....	.....
Net Result	.....	4,474 62	.....	2,791 80

RAILWAY.

JUNE 21ST TO OCTOBER 31ST, 1911.

September.		October.		Total from June 21st to October 31st.	
.....	$4,604 41	.....	$4,696 10	.....	$22,654 92
.....	1 30	.....	1 85	.....	6 95
.....	.....	.....	45 00	.....	90 00
.....	25 00	.....	177 00	.....	248 00
.....	1 00	.....	.....	.....	1 00
.....	4,631 71	.....	4,919 95	.....	23,000 87
.....	.....	.....	.....	.....	9 00
.....	.....	.....	.....	.....	9 00
.....	4,631 71	.....	4,919 95	.....	23,009 87
Per cent.		Per cent.		Per cent.	
10.3	475 65	10.5	518 90	9.4	2,162 60
4.2	192 40	.7	30 00	3.	694 72
.6	30 00	.6	30 00	.6	130 00
37.9	1,756 63	37.2	1,829 81	33.7	7,752 96
5.2	239 92	13.9	685 10	5.4	1,239 92
58.2	2,694 60	62.9	3,093 81	52.1	11,980 20
.....	1,937 11	.....	1,826 14	.....	11,029 67
.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....
.....	1,937 11	.....	1,826 14	.....	11,029 67

Maintenance of Way and Structures.

—	June 21. July 31.	Aug.	Sept.	Oct.	Total from June 21- Oct. 31.
	$ c.	$ c.	$ c.	$ c.	$ c.
Superintendence of way and structures	40 00	30 00	30 00	30 00	130 00
Roadway and track labor	385 60	192 00	258 00	404 00	1,239 60
Miscellaneous roadway and track expenses	.....	20 16	.....	.....	20 16
Transmission system	124 13	130 25	50 83	42 45	347 66
Distribution system	114 65	130 25	51 00	42 45	338 35
Buildings and structures	.....	1 01	85 82	.....	86 83
Total	664 38	503 67	475 65	518 90	2,162 60

Maintenance of Equipment.

Superintendence of equipment	40 00	30 00	30 00	30 00	130 00
Power plant equipment	.....	140 76	.....	.....	140 76
Passenger and combination cars	9 22	251 69	162 40	.....	423 31
Shop expenses	.....	65	.....	.....	65
Total	49 22	423 10	192 40	30 00	694 72

Traffic Expenses.

Superintendence and solicitation	40 00	30 00	30 00	30 00	130 00
Total	40 00	30 00	30 00	30 00	130 00

Transportation Expenses.

Superintendence of Transportation	40 00	30 00	30 00	30 00	130 00
GROUP 1—POWER.					
Substation employees	250 00	200 35	199 75	185 47	835 57
Power purchased	1,227 60	659 87	682 73	753 57	3,323 77
GROUP 2.—OPERATION OF CARS.					
Passenger conductors, motormen and trainmen	844 14	654 40	629 46	678 87	2,806 87
Miscellaneous car-service expenses	.....	66 84	1 10	68 85	136 79
Station expenses	.....	4 25	2 05	6 35	12 65
Carhouse employees	122 07	67 00	23 54	106 70	319 31
Carhouse expenses	.....	.....	188 00	.....	188 00
Total	2,483 81	1,682 71	1,756 63	1,829 81	7,752 96

General and Miscellaneous Expenses.

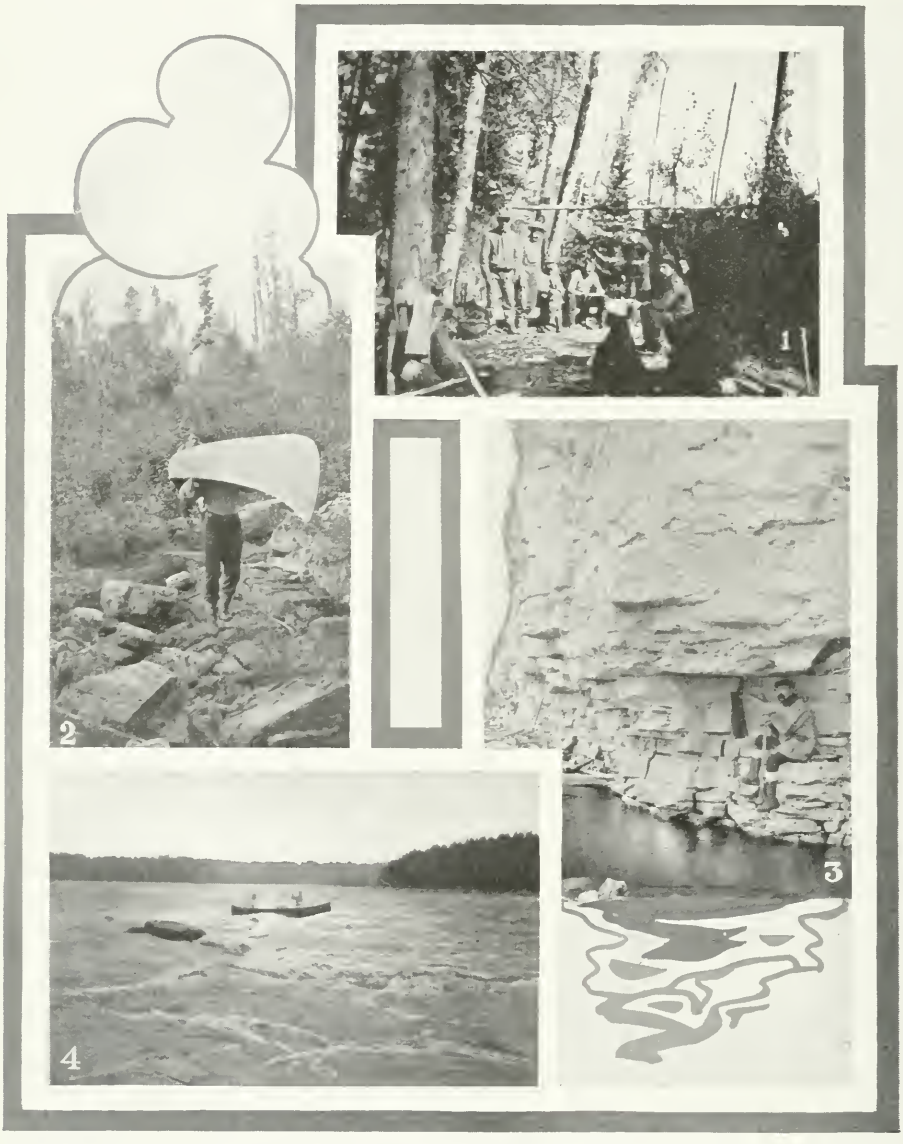
Salaries and expenses of general officers	40 25	30 00	30 00	30 00	130 25
Salaries and expenses of general office clerks	.....	85 00	85 00	85 00	255 00
General office supplies and expenses	6 18	.....	5 78	6 00	17 96
Miscellaneous general expenses	4 05	27 45	12 50	.....	44 00
UNDISTRIBUTED ACCOUNTS.					
Injuries and damages	.....	.....	.....	50 00	50 00
Insurance	.....	.....	.....	463 60	463 60
Stationery and printing	25 00	96 97	106 64	50 50	279 11
Total	75 48	239 42	239 92	685 10	1,239 92

NIPISSING CENTRAL RAILWAY.

Miscellaneous Statistics.

June 21st—October 31st, 1911.

——	June 21–July 31st.	August.	September.	October.	Total.
Passenger car hours.....	1,623.25	1,277.	1,176.50	1,213.25	5,290.
Passenger car miles	16,209.	12,757.	11,765.	12,131.	52,862.
Total passengers carried.....	93,111.	70,542.	59,143.	59,019.	282,815.
Average daily receipts	$189.94	$182.97	$154.43	$158.72	$173.01
Average receipts per car hour	4.79	4.44	3.94	4.06	4.35
Average receipts per car mile	.48	.45	.40	.41	.44



Camps at Grand Rapids, Mattagami River.

1. Camping Party.
2. Carrying a Canoe.
3. Bluff, Grand Rapids, Mattagami River, showing a Cave Dweller.
4. Shooting a Rapid.

JAMES BAY SURVEYS

Exploration Trip, Cochrane to James Bay, June 9th to Sept. 12th, 1911

By SYDNEY C. ELLS.

OTTAWA, Oct. 14th, 1911.

In accordance with instructions of June 3rd, I left Cochrane on the 9th of June, travelling northward via the Frederick House, Abitibi and Moose Rivers. The party consisted of four men besides myself, this number being augmented from time to time as circumstances required. Returning via the Mettagami River, I again reached Cochrane on the 12th of Sept., having been absent fourteen weeks. Of this time, four weeks were spent in actual travel between Cochrane, Hannah Bay and Moose Factory, and seven weeks in considering the possibility of securing terminal and harbor facilities at Moose Factory or Hannah Bay. The remaining three weeks were devoted to a brief examination of the country immediately adjacent to the route of travel followed. The trip throughout was, I may say, uneventful and free from accident of any sort.

The season's operations thus fall naturally into two divisions: (1st) An investigation of the possible harbor facilities at James Bay, and (2nd) a general consideration of the character and resources of the country lying immediately to the south of the Bay.

POSSIBLE HARBOR FACILITIES ON JAMES BAY.

From time to time and in a very general way in considering a possible terminus on tide water at James Bay, the estuaries of three rivers—the Albany, the Moose and the Harricanaw—have usually been mentioned. All three streams are of considerable size, are old-established canoe routes—especially the Albany and the Moose—and all lie within the boundaries of the Province of Ontario. Incidentally, it may be said that, apart from these three locations, there is absolutely no other point on James Bay (and within the boundaries of this Province) where a potential tide-water terminal can be said to exist.

Regarding the first of these—the Albany River—the stream is for a distance of several miles above its mouth divided into minor channels by numerous islands. The force of the main volume of the river is thus dissipated, with the natural result that many bars and shoals everywhere obstruct the narrow channels. At the outer bar, sailing boats drawing three feet of water must wait for the tide before coming in. In the face of existing conditions, it is indeed difficult to understand why the estuary of the Albany should ever have been seriously considered as a possible harbor site.

In the case of the two remaining possibilities, the estuaries of the Moose and of the Harricanaw, conditions appeared somewhat more favorable. Preliminary surveys were, therefore, made at these two points. The plans which are the result of this work are submitted herewith, and will serve to roughly illustrate such relative as well as absolute advantages as may be looked for at either of these places. In each case some uncertainty still exists regarding the exact range of spring and neap tides, all observation regarding rise and fall being made during the progress of the surveys, and, therefore, extending over but a limited period.

Going down Frederick House River, June 10th, 1911.

Above Long Point, Abitibi River.

For all practical purposes, however, the figures noted on the plans may be taken as correct. Equinoctial springs are said to cause exceptionally high tides for a period of two to three days. As those tides are of short duration, and may be looked for at more or less definite and fixed intervals, their effect need not be seriously considered at the present time.

(1) Estuary of the Moose River.

(*a*) *General Description.*—The Moose River enters James Bay through a wide, low lying, level tract of country, and with no prominent, well-defined banks to control the force of its current. Such topographical conditions could naturally have but one result, that is, a wide and extensive estuary with numerous bars crowding its shoal waters.

Six miles inside an outer bar, which marks the outer limit of the estuary, the river has a breadth of 3½ miles. At 18 miles up stream it still maintains a breadth of three miles, and at 26 miles, the distance between the east and the west banks, is slightly over 1½ miles. At this latter point the Fishing Tent Rapid, the first swift water on the Moose, lies like a low broad terrace across the river, and establishes the southern limit of tide water. It will thus be seen that the tidal portion of the Moose constitutes a stream of no inconsiderable extent.

Beginning a short distance above the Fishing Tent Rapid, and extending to within a few miles of its mouth, the waters of the Moose River are divided by a long and continuous series of islands and shoals into two distinct channels, usually referred to as the North and South Channels. On the North Channel, the French Trading Co. of Revillon Freres Ltd. have had their post established since 1903. On the South Channel, the Hudson Bay Company post known as Moose Factory has until within recent years (1902) constituted the recognized headquarters of that trading company for all the Hudson Bay territory. It is interesting and significant to note that, in spite of the fact that for upwards of 200 years the Hudson Bay Co.'s ships have been trading in and out of Moose River, no chart or plan of the River has ever been made by that Company, nor is there available a single tidal record.

We thus have in the lower reaches of the Moose River two channels, the North and the South, the waters of both uniting to form the broad estuary at the mouth of the river.

(*b*) *Plan.*—The plan has been drawn on a scale of 800 feet to one inch, with a smaller insert map on a scale of one mile to one inch. On the larger scale plan a provisional channel, showing not less than twelve feet of water at ordinary high tide, has been laid down, and along which several alternative land approaches are indicated. Profiles indicating comparatively the north and south channels have also been drawn. Soundings could of necessity be taken for only a short distance (two miles) beyond the outer bar, but such soundings show a perfectly uniform deepening of the water of 5ft. to 6ft. per mile. It is, further, worthy of note that vessels, sail or steam, require the pilot's services only after reaching point (A) indicated on the plan.

(*c*) *Townsite.*—With the data at present available regarding the extent and action of spring floods, it is impossible to express a final opinion on the question of a Townsite. It is, however, an established fact that the site of the Revillon Co. trading post has never been flooded in the Spring. Regarding the liability to floods of the ground lying along the river between the above Post and Ships Sands Island, opinions differ. By going inland, however, from the shore of the river for a distance of one-third mile at section B, mile 11.5, it is almost certain

that a Townsite, free from the effects of spring water, could be located. Naturally the farther up stream such a point might be selected, the closer could it be taken to the river. It would simply be a case of balancing distance up stream against distance inland from the river. Regarding the character of soil that would be encountered, clay bottom underlying a moderate depth (2-3 ft.) of moss and muck, will be found at any point selected between Ships Sands and the French Post.

(*d*) *Tides and Currents.*—Apart from such superficial observations as could be made during a brief stay of a few weeks, there are, so far as could be learned, no records regarding these very important features.

The range of the rise and fall of all tidal waters is subject to wide variations, this being especially true in the case of river estuaries. Narrowing and widening of the channel, change in the force and direction of wind, as well as variations in barometeric pressure, are the chief influences to be reckoned with. Particularly is the wind an important factor along the shores bordering the wide and comparatively shallow waters of James Bay. As a result, at the mouth of the Moose River, with a heavy north-east or north-north-east wind, the tide may rise through a range of six or seven feet with a subsequent fall, possibly not exceeding two feet. The following time table is based on such intermittent gauge readings as could be taken during parts of July and August, 1911. It is probably subject to more or less modifications with more complete observations:—

Where Observed.	Average range of Neap Tides.	Average range of Spring Tides.
Moose Factory	3.8–4.5 ft.	4.5– 5.5 ft.
Head of Ships Sands	5.5–7.0 ft.	7.0– 7.5 ft.
Outer Bar (Estimated)	7.0–8.0 ft.	8.0–10.0 ft.

Finally, equinoctial tides usually occur during September, and are effective over a period of not more than 2-3 days. It is unfortunate that no reliable data is available regarding these extreme tides, as, in the selection of any terminal, they must be taken into consideration. The general opinion among residents at Moose Factory and at the Revillon Post is, however, that such tides cover Ships Sands Island to a depth of 2-3 ft., thus implying a range for equinoctial tides of possibly twelve feet.

With an incoming tide the current in the river is reversed as far as the Fishing Tent Rapids, the rate of flow varying from approximately 3 miles per hour at the head of Ships Sands Island to 2½ miles at the Revillon Co. wharf. The rate of combined summer current and ebb tide probably exceeds these figures by ½ mile per hour in each instance. Thus, at any stage of the tide, the current would not effect the steam vessels entering the river or proceeding up stream. Sailing vessels, however, owing to the limited channel at low tide, would have to wait for a fair or quartering wind, or else allow the incoming tide to carry them up to their anchorage. Finally, the very great uniformity at the bottom, as indicated by the soundings, is a matter for no little satisfaction. There are no rips or other tidal currents due to an irregular bottom, and light canoes may navigate any part of the estuary at any stage of the tide in perfect safety.

At low tide, fresh water may always be obtained as far out as the Shears Beacon, but beyond this the water is frequently brackish. At high tide fresh water can

Reapers—Ship Sands Island.

Hay Meadow, Ship Sands.

always be had as far out as Beacon No. 2 and sometimes (depending on the direction of the wind), as far as the Shears Beacon.

(*e*) *Spring Floods.*—Another factor to be carefully considered in the selection of a possible situation for docks are the Spring Floods. Information concerning the effects of these has of necessity been obtained from local residents, supplemented by such evidence as the character and size of standing timber, range of pieces of drifted wood and injury done to trees by floating ice. Incidentally the effect of such floods, both in silting up the river bed and in covering the banks of the river, appears to have been rather over-estimated.

Extreme high spring water in the north and south channels of the Moose River, is, as elsewhere, chiefly due to ice jams, and is to that extent preventable. Such blockades are of more frequent occurrence, and, apparently, accompanied by more serious results in the South Channel than in the North Channel, presumably owing to the shallower water found there.

Shoal water, bars, and a considerable change in the direction of the channel near the head of Middleboro, usually causes the ice to jam between that point and Pilgrim Island, on the one hand, and Moose Flats on the other. At such times water may be expected to completely submerge Moose Flats and also to cover Pilgrim and Middleboro Islands to a depth of one to three feet. Moose Island itself is known to have been flooded but once (1895), when water 3-5 feet deep covered the island for several hours. But what is of still greater importance is the fact that the heavier water, naturally forced to the north side of the river, will tend to keep that channel open.

When, however, ice blockades the North Channel, the islands on the side also flood. Jamming, as it usually does, on either side of Butler Island, that island, as well as Charles Island, may have one to two feet of water flowing over them for a period not exceeding one to three days.

Along the North Channel, below Butler Island, the extent to which spring floods inundate the shore could not be determined. The fact, however, that spruce and balm-of-gilead up to 16 inches diameter are found several miles further down stream would seem to indicate that such floods are not of a very serious nature, and certainly not of long duration. In this connection it seems reasonable to suppose that, if desired, the occurrence of such ice jams could be prevented by the judicious use of blasting powder.

Regarding the silting up of the channel and the formation of bars, it is asserted by some of the older pilots at the trading posts that while the South Channel is becoming shallower, the North Channel is, if anything, becoming deeper. It is difficult to say whether actual conditions justify such a statement. It would appear, however, that lacking further and more definite evidence, the difficulties implied by an unnaturally rapid silting up of the channel should not be over-estimated. There is no doubt that, to some extent, continual change takes place in the size and shape of bars and shoals. Naturally the ice forms more or less close to, and in some cases directly on, these bars and shoals, and hence any sediments brought down will tend to accumulate about the head and along the sides of such sheets of anchored ice. The use, if necessary, of wing dams at one or two points would do much to prevent trouble from the above cause.

(*f*) *Ice Conditions.*—The Spring breakup, near the mouth of the Moose River, takes place between April 20th and May 20th, an average date being May 5th. During this breakup the Fishing Tent Rapids serve to disintegrate large cakes of ice coming down stream, and but few pieces 15 ft. across reach either of the trading posts. In point of destructive force, and in the tendency to form

ice jams, the spring breakup on the Moose does not, apparently, compare with that which takes place every spring in Montreal, Quebec, or at a number of other Canadian River Ports. This Spring (1911) canoes descended the Misinabie and the Moose from old Brunswick House Post, a distance of over 160 miles, and arrived at Moose Factory on April 31st. It is considered not unusual for canoes from up river to reach this H. B. Co. post by the 10th of May.

Navigation on James Bay itself is said to open sometime in June. From that time on until the end of October there is no hindrance to navigating James Bay, either in coast-wise trade or directly in and out of the Bay. About the middle of October navigation for canoes on the various rivers becomes uncertain, ice forming any time after that date, and by the end of November winter has set in. Ice forms in the river as far up as Fishing Tent Rapids to the thickness of 3½ to 4 feet. Along the shores this ice freezes to the bottom for a distance of 50 to 300 feet from shore, depending on the depth of water. Along the edge of this shore ice a break occurs, the main body of ice in the river rising and falling with the tides; the shore ice is, however, covered by the tides to a greater or less extent. Ice forms also for a distance of probably 50 miles from the shores of James Bay. Winter travel on the Bay on the estuary of the Moose, or on the river itself is perfectly safe during four to five months of the year.

(*g*) *Location of Docks.*—In the present total absence of authentic records regarding the effects of temporary spring floods and of equinoctial tides, no final pronouncement can be made. Along the South Channel the first possible location for a terminal is (as indicated on the plan) in the vicinity of East Point. While possessing certain favorable features, it is obvious that, in point of distance, and in depth of channel, locations (A) and (B), on the North Channel, will afford superior advantages.

(*h*) *Materials.*—Drilling with a view to determining the character of material underlying the entrance and river mouth was attempted on the Sand Head Bar. The rods used, however, proved inadequate to penetrate the stiff blackish clay encountered near the surface. The nearest rock *in situ* that was observed was well bedded and undisturbed, more or less flaggy limestone having a slight dip towards the North-West. This limestone occurs on a point some twelve miles to the East of Sand Head Bar. Toward the South-West the nearest rock in place occurs near the Fishing Tent Rapid, 24 miles up stream. To the West, Maidmans Creek shows no rock in place for a distance of at least six miles from its mouth. To the North-West it is said that no rock occurs for 50 miles from the Sand Head Bar. Thus, there seems no reason, lacking evidence to the contrary, to anticipate that rock will be encountered at any such depth as would be called for, either in deepening a channel through the shoal water at the mouth of the estuary or in excavating for any berths or shore approaches indicated on the plan. Scattered boulders, apparently of a size not exceeding 3 ft. diam. are exposed on the flats at low tide, well to the east and west of the channel. Within a mile, however, of either side of the indicated channel, very few boulders are to be seen.

(*i*) *Materials for Construction.*—Stone for construction purposes is, as indicated above, not available in the immediate vicinity, and will have to be transported a considerable distance. Where found in place, however, it is a bedded limestone that could doubtless be used to advantage. The question of timber is discussed elsewhere in this report. It may be stated here, however, that there will be no difficulty in securing all piling that may be required, and larger timbers up to 20 in. diameter in fair quantity can be floated down the river. It may

be here stated that one of the best cuts of logs the H. B. Co. has yet taken out for their sawmill at Moose Factory was from a spruce bluff near East Point, on the South Channel, and less than four miles from the head of Ships Sands Island.

(*j*) *Anchorage.*—As the plan indicates, a wide bar, herein referred to as the Outer Bar, and which is covered at low tide by 6 ft. to 8 ft. of water, lies across the mouth of the Moose Estuary. Towards this bar the winds from the north-east and north-north-east have a reach or fetch of 50 and 100 miles respectively. The maximum effect of storms over a distance of 50 miles would be to raise a sea not exceeding ten feet, while across the greater distance of 100 miles, the maximum height attained by the wave would be approximately 15 ft. Storms having such an effect would obviously be of rare occurrence. If then, we assume, as we may safely do, that a 10 ft. wave will break in on a bar covered by 10 ft. of water, and a 15 ft. wave on a bar covered by 15 ft. of water, the Outer Bar should constitute, even in severe weather, a considerable protection to vessels lying inside. Vessels passing beyond the Sand Head Bar, would, however, be assured of adequate shelter, as the bars and shoals would form an effective breakwater in any weather. The strong heavy clay that appears to underly the estuary of the river should prove an excellent holding ground for anchors.

HARRICANAW ESTUARY—HANNAH BAY.

In its general topographical features, the estuary of the Harricanaw River resembles that of the Moose. For many miles before reaching Hannah Bay the Harricanaw flows through a wide, level track of low-lying alluvial country, finally entering the Bay through a broad estuary more or less choked by bars and extensive shoals. Moreover, like the Moose, the Harricanaw, toward its mouth, also divides to form two very considerable channels on either side of a series of islands and bars. But here the similarity between the estuaries of the two rivers ceases. Fortunately, in the case of the Moose River, the two channels again unite before reaching the mouth of the river, and the combined strength of the total discharge constitutes a force the influence of which is seen in a very considerable channel, free for the most part from obstructing deposits. On the other hand, the two channels of the Harricanaw do not again unite. Once beyond the restraining influence of well defined banks, the erosive force of the divided stream is not sufficient to maintain the channel. It would, therefore, appear that, considering the data at present available, the advantage undoubtedly lies with the estuary of the Moose River.

(*a*) *The Plan.*—The plan of the estuary of the Harricanaw has been drawn on a scale of 1 in. to 800 ft. A possible channel is indicated, which, in calm weather, will allow vessels drawing 10 ft. of water to cross the bar at high tide. A few occasional soundings are charted on ranges beyond the outer tidal bars. It is believed that no greater depth of water will be found within the limits of these ranges, and that the deepening of the water seaward will here, as elsewhere about James Bay, be found of sufficient uniformity to allow of interpolating other soundings that will be very approximately correct. Beyond the outer soundings indicated, no information could be obtained with the equipment (small canoes) available. It is, therefore, not known what the conditions may be regarding shoals and bars lying further off shore. A profile showing the depth of channel as laid down on the 800 feet plan has been drawn for purposes of comparison with the channel of the Moose River. All soundings are reduced to low tide level.

Back of Moose Factory.

Factor's House, Moose Factory.

(*b*) *Tides and Floods.*—Tides have a slightly greater range than in the Moose River, and a series of gauge readings taken at the head of Hay Island, July 30th, August 6th, shows a range of 7 ft. to 9 ft. for spring tides and of 5.5 to 7 ft. for neap tides. These figures would probably be increased by 1.5 ft. at the Outer Bar. The effect of spring floods was not determined. Near the head of Hay Island, the site of the abandoned H. B. Co. Post appears to have been free from spring water, and but little trace of the effects of floods was seen over the upper half of the island itself. There is no doubt, however, but that, at extreme stages of water, the island as well as the mainland is for short periods (2—5 days) more or less submerged as far as a point indicated on the plan as mile 6.

(*c*) *Anchorage.*—The bars and shoals would afford adequate shelter from any sea, but the entrance in any but light weather would probably be extremely dangerous. Holding ground for anchors is good and consists of a blue clay at all points examined.

(*d*) *Material.*—The bottom of the channel is everywhere a blue clay. Occasional small areas of gravel with scattered boulders of maximum diameter of 2 ft.—3 ft. are seen on bars exposed at low tide. Otherwise all bars are overlaid by 6 in.—2 ft. of sand. The nearest rock seen in place, an almost horizontally bedded limestone, lies about fifteen miles to the west, and in ascending the river quite 13 miles from the outer bar, no rock exposures were seen. Considering these conditions, then, there seems no reason to anticipate that rock in place would be met with at practicable dredging depths.

(*e*) *Materials for Construction.*—An ample supply of spruce is available for piling, and considerable quantities of scattered spruce up to 20 in. to 24 in. in diameter can be had along the banks of the West and of the Harricanaw Rivers. Rock (limestone) is available on an exposed shore 14 or 15 miles to the west of the river mouth.

(*f*) *Townsite.*—It is doubtful if any ground suitable for a Townsite could be secured below the head of Hay Island. Terminals and landing facilities could be arranged not far from the point indicated on the plan as mile 7. Fresh water can be had at almost any stage of the tide for some distance out beyond the mouth of the West River.

The Character and Resources of the Country Lying Immediately to the South of James Bay.

Generally speaking, the possible natural resources of a new country such as that under consideration may be stated as falling under three chief heads:—

(1) Resources depending for their value on Agriculture.
(2) Resources depending for their value on Economic Minerals.
(3) Resources depending for their value on Timber.

(1) In considering the possible agricultural resources of that portion of Northern Ontario lying immediately to the south of James Bay, my conclusions are based on such data as could be gathered during a part of the present season, in addition to such observations as I had made during previous private explorations in that section of the country. To explore in detail a region having the wide extent of that under consideration was quite out of the question. I, therefore, selected a limited area which I have considered as constituting a small section of a possible Railway belt, and examined this tract of country in as much

detail as time would allow. The area thus visited and the position of the traverses made have been indicated on Map No. 3 enclosed herewith. In adapting this line of procedure I have made the necessary assumption (and from my knowledge of the country I believe the assumption is correct) that, considered radially from James Bay, there is a considerable uniformity in the timber and land conditions over wide areas. Thus, I have assumed that conditions which are known to prevail in the strip of country indicated on Map No. 3 and at points say thirty miles or forty miles or fifty miles south of Moose Factory between the Abitibi and the Mettagami, will also, at similar distances, apply fairly well to the country between the Abitibi and the French, or between the Mettagami and the Masinabie. At these distances of thirty or forty or fifty miles from Moose Factory, minor variations will be found depending on primary and secondary drainage; but, in the main, I believe the above assumption will hold good. Thus, if we have a 5 ft. muskeg at a distance of thirty miles south of James Bay, I would look for a similar condition East and West along a belt roughly parallel with the shores of the Bay, or, in other words, radially from the Bay. This assumption I have based on the fundamental principle that the country adjacent to James Bay on the South and West side is gradually being elevated.

NOTE.—More correctly speaking, the waters are receding from the shore. One explanation is that the weight of the great antarctic ice cap, possibly two miles in thickness, may cause a change or shift in the position of the centre of gravity of the earth, and result in a consequent and proportionate lowering of the waters in certain parts of the northern regions.

For, if such is the case, it will naturally follow that those areas, most recently elevated above tide water, will have had the least time and opportunity to accumulate on their surfaces masses of moss and of peat. On such areas the depth of moss and peat will be less in proportion than it is on the older areas. Thus, as we leave the shores of James Bay, the depth of the muskeg should gradually increase, and it will be observed that the figures indicated on Map No. 3 roughly bear out this assumption. Eight miles to the west of Moose Factory the depth of moss and muck is 2 ft. to 3 ft.; 10 miles further south the depth is 2 ft. to 4ft.; and 40 miles, 4½ to 5 ft.; at 60—80 miles, 5½ to 6 ft.; and at 90 miles the depth is 6 to 8 feet. South of this point, the country undergoes a gradual change. The surface becomes more broken by the low ridges of rock and sand, and the wide, continuous and uninterrupted areas of muskeg and moss disappear, giving place to smaller isolated areas in purely local depressions. This region constitutes the transition between the typical country of the coastal plain and the clay belt extending north from the line of the Transcontinental Railway.

Referring to this strip of country examined, lying in the coastal plain, and indicated on Map No. 3 in red, the approximate length north and south is 70 miles, the width east and west about 13 miles and the contained area 850 sq. miles. As already suggested, I believe that conditions which apply here will be found to apply generally to very much larger areas, especially towards the West. Of this 850 sq. miles examined, 800 miles, or over 90 per cent., consists of what is apparently a good quality of clay soil, well adapted for agriculture. Of this 800 sq. miles, 65 per cent. is covered with from 3 to 5 feet of moss and muck, and the balance has 4 to 6 feet of moss and muck. This estimate does not, however, include very considerable areas of land immediately adjacent to Creeks and Rivers, which are to a varying extent affected by drainage and are consequently free from deposits of muck and moss. As such strips vary widely and are from 100 to 2,000 feet in width, no attempt has been made to determine even approximately these very considerable areas.

NOTE.—The area to which these figures apply, lies, as stated, in the coastal plain, and is outlined on Map No. 3, in red. South of this, and lying both to the north and south of the Archaen Boundary, is the transition area referred to. Some 600 odd square miles was included by the traverses in this transition section, of which area probably 75 per cent., or 450 square miles, is unsuited to agriculture, owing to deposits of sand. The explanation of these sandy tracts, which constitute much of the transition area, is as follows:—Originally in the great glacial lake, (see Appendix No. 3), deposits of clay were laid down, and should be found generally underlying the whole country. As the waters of this lake, which later became an inland sea, retreated, the action of the water was exactly as we have it in the case of any large body of water to-day. Where the shore line consists of hard rocks containing a large percentage of quartz, we find the waves wearing away the rocks to form sand beaches. A natural concentration or classification takes place and the lighter quartz sand remains on top. Similarly is the case of the glacial lake,—its retreating waters beating against the projecting knobs and ridges of the Archaen rocks established sand beaches from the wearing away of these rocks. I have referred to this somewhat at length, because I believe that all along this escarpment of the Archaen rocks, east and west, will be found a similar belt of more or less sandy waste land. We thus have the three great belts—(1) The Coastal Plain, north of the Archaen Boundary, which is practically all good clay soil; (2) The region of change or transition between the coastal plain and the upper plateau, and of which a large proportion is waste land; (3) The upper plateau, comprising the wide clay belt, through which the Trancontinental Railway runs.

Evidence of the apparently good quality of the soil is seen in the character of the growth on such areas as have been affected by partial or complete drainage. Thus, it is no uncommon thing to find anywhere along banks of creeks and rivers, where fire has not run, spruce, balm-of-gilead, and birch up to 20 in. to 24 in. in diameter, with raspberry bushes, grasses, golden-rod, daisies, with other common field plants, and often a profusion of luxuriant ferns in the more sheltered places.

Regarding the climate of the coastal plain, there is already ample data available to demonstrate its adaptability to wide range of agricultural products. In Appendix "A" will be found tables from Meteorological records by R. F. Stupart, Director of the Dominion Meteorological Service, and from which the following extract is taken:—

Mean Average Temperature in Various Months.

Station.	Jan.	Feb.	March.	April.	May.	June.	July.
Edmonton	7.0	9.8	22.3	41.0	51.5	57.1	61.2
Moose Factory	4.0	1.2	10.0	27.3	41.6	55.2	61.6

——	Aug.	Sept.	Oct.	Nov.	Dec.	Summer Mean.
Edmonton	59.1	50.0	41.5	24.0	16.6	59.1
Moose Factory	58.6	51.7	40.4	21.0	3.3	58.5

NOTE.—Mr. Stupart, who has, I believe, devoted considerable time to the question of mean summer temperatures as applied to the raising of wheat, considers a mean summer temperature of 57.5° to be a safe limit up to which wheat can be grown. The present mean temperature, given in the above table, namely 58.5°, would, doubtless, be modified as a result of drainage.

It can scarcely be said that the policy of the Hudson's Bay Company has been to encourage agriculture at their posts in Northern Ontario, and attempts at cultivating the soil appear to have been largely of the hit or miss order. However, at New Post, 100 miles south of Moose Factory, I was informed that there have been raised successfully all the common garden vegetables, including potatoes, carrots, cucumbers, radishes, etc., and even Indian corn and tomatoes. The

Moose Factory.

Mr. McLeod and Family, New Post, June, 1911.

agent in charge also stated that he had grown pumpkins up to 18 lb. weight, marrow squash 2 ft. in length, and that melon vines had been cut by an early frost after the melons had attained a diameter of 5 in. On June 18th of this year a fine crop of clover and timothy hay 3 ft. high covered an area of several acres, although the ground had not been cultivated in any way for several years. Similarly, at Moose Factory, all the common garden vegetables do well, and bags of new potatoes of good quality, dug on August 10th of this year, were purchased from the Hudson's Bay Co. Nothing definite could be learned here regarding attempts to cultivate cereals, but on the 8th of August there was at Moose Factory a very fine field of barley ready to cut. Light summer frosts have occurred in the past at intervals, as is but natural amid such a vast area of undrained land. Such frosts are said to be of rare occurrence, and would doubtless disappear with the clearing up of the land. It is an established fact that early and late frosts are now unknown in many parts of the West, where years ago there was frost in every month of the year.

Finally, to anyone who has at all considered the matter, the question of latitude, as applied agriculturally to the coastal plain of James Bay, can be of no real significance. At the following points not only have all the ordinary root crops and garden vegetables been successfully grown, but even wheat has been ripened:—

Name of place.	Latitude.
Fort Simpson	61°48′
Fort Providence	61°24′
Fort Heard	60°15′
Fort Vermilion	58°24′
Fort Chipewyan	58°42′
Fort McMurray	56°42′
Lesser Slave Lake	55°36′
Dunvegan	55°55′
Fort St. John	56°15′
Hudson's Hope	56°00′
Norway House	54°00′
Nelson House	55°48′

Note.—The Province of Tobolsk, in Siberia, lies between latitudes 55 and 70. In 1907 the Agricultural products were:—

Wheat	11,779,000 bush.
Rye	4,344,000 bush.
Barley	829,000 bush.
Oats	13,818,000 bush.

There was also exported 17,711,446 lbs. of butter. The population of the province is 1,656,700.

Compared with the above, the latitude of Moose Factory is 51 deg. 18 min., and of New Post 50 deg. 80 min. The latitude of Edmonton is 53 deg. 33 min. Even should the climate be somewhat colder in winter, this fact will not debar people from settling there if the agricultural possibilities are established. As has been remarked, "Things don't grow in the winter, anyway."

(2) Resources Depending on Timber.

The explored area on the coastal plain, as indicated on Map No. 3, that is, for quite 90 miles south of James Bay, is decidedly not a timber country. As a producer of saw logs and of pulpwood, practically the only areas are immediately adjoining creeks and rivers. On Map No. 3 are indicated a few of the points at which estimates of the timber growth were made.

There are several reasons why it is difficult to estimate the timber growth in the belt of land under consideration north of the latitude of New Post:—

(1) There has been a series of fires over quite 60 per cent. of the country, and these fires have resulted in a series of second growths. The difficulty is that these second growths are of various ages, some dating back to 10, some 20, some 50, and some 75 years. Apart from this, only remnants of the original forest remain.

(2) The edges of these several burnt areas are naturally exceedingly irregular. These areas may vary from a width of 100 feet to 1,000 feet in a very short distance.

(3) The small tributary streams along which a great deal of the available timber is to be found have never been mapped and their extent is, therefore, not known.

Hence, I have formed the following conclusions:—

(1) That a large number of piles (all spruce) and sufficient for all railroad and terminal purposes can be secured more or less conveniently to the work, while there is a good deal of scattered tie timber. Its scattered character makes it difficult to say whether there would be a sufficient supply to allow 2,600 ties to the mile, but certainly a large number of ties can be had.

(2) That the country can never hope to export timber products, but can expect sufficient for local uses for some time to come.

(3) That considering the manner in which timber occurs for the most part, namely, in long narrow belts, permanent sawmills can never be used. Portable mills, situated near a line of railway are the only means of handling the small cuts available. Small sawmills operated by the Revillon Co. and by the Hudson's Bay Co., at Moose Factory, have for a number of years had no difficulty in obtaining all the logs they require—about 1,000 logs per annum per mill.

(4) The large single area of pulpwood of good quality and growth was estimated at 1,000 acres. Generally the areas seen appeared to be considerably smaller than this.

(5) There is in the burnt areas sufficient fire killed wood to supply fire wood for settlers for several years.

(3.) Resources Depending for Their Value on Economic Minerals.

From time to time various reports have been made concerning the value of economic minerals occurring to the north of the Archaen Boundary. In this connection the following are the more important minerals that have been mentioned:

1. Gypsum.
2. Lignite.
3. Peat.
4. Oil.
5. Bituminous Shales (so-called).
6. Iron.

1. Gypsum: It is not necessary to here refer to the commercial and mining conditions which at present govern the production of gypsum and its various derivatives in Canada and the United States. From considerations of possible markets and the adaptability of the deposits to development, it can be easily demonstrated that the future of the gypsum deposits on the Moose River, apart from a limited local consumption, is problematical for many years to come.

2. Lignite: Occurrences of lignite in Northern Ontario have, I believe, been mentioned in reeports from time to time, and for this reason they are here referred to. Having personally examined nearly all the deposits of lignite in the Moose River basin, I find it hard to see how these deposits can be seriously

considered as of economic value. The insignificant size and irregularity of the seams, the inferior quality of the coal itself, and the utter impractibility of mining the deposits, are some of the reasons that would tend to discourage development in this direction.

3. Peat: Opinion is still somewhat divided as to the probable future of peat as a potential factor in the mineral resources of Canada. It will doubtless continue to be so until the final results of the elaborate experiments at present being conducted by the Department of Mines at their testing plant and laboratory at Ottawa, and at the various Government peat bogs, are announced. It may then be time to consider the possible value of the reported peat bogs of the coastal plain, a value which, so far as I can learn, still remains to be demonstrated by analyses and by soundings or other measurements.

4. Oil: So far as is ascertainable certain oxides derived from decaying vegetable matter constitute the rather uncertain evidence upon which, to date, the petroliferous future of the region depends. As a matter of fact, there is at present no direct evidence of the presence of petroleum in the great Devonian areas of the coastal plain. What is, however, of still greater consequence, is the absence of any indications of an impervious stratum or cap, and the probability that such a stratum or cap, if it ever existed, has long since been eroded away, along with a considerable thickness of the Devonian formation itself.

5. Bituminous Shales: A description of these Devonian shales, which outcrop extensively along the Abitibi River above the mouth of the Little Abitibi, and which have been referred to as oil shales, will be found in the detailed notes submitted herewith. Samples for analysis are at present in the hands of the Department of Mines at Ottawa, but the quantities of oil and of ammonia contained in these shales will, I think, be found to be of negligible value.

6. Iron: Regarding the iron on the Mettagami, Mr. Baker has, I believe, already reported. While I have not as yet seen his report on these desposits, it may possibly be regarded as a significant fact that two of the men largely interested in these mineral claims have informed me that they are allowing their stakings to lapse.

Clay:—In such an enormous area of clay deposits, certain varieties of clay of considerable economic value, as being adapted to special uses, may possibly be found. Considering the geological origin of these clays, however, (see Appendix No. 3) one would expect a great uniformity through the whole of the Moose River Basin. Mr. Heinrich Rees, of Cornell University, and Mr. Jos. Keele, of the Canadian Geological Survey, are at present investigating the clay deposits of the Dominion. Their opinion in regard to this matter would doubtless be of interest as well as of value.

In conclusion, then, and considered as a primary incentive to the opening up of the area known as the Coastal Plain, the mineral prospects, as at present recognized, can scarcely be described as bright. On the other hand, it must be remembered that, apart from a very general sort of exploration, no actual prospecting has as yet been done. Moreover, it is more than probable that, sooner or later, some at least of the deposits referred to above will take their place as productive assets of this region.

Hay Meadow, Ship Sands.

Hay Stacks—Ship Sands, Moose Factory.

Table I.

Showing the mean average temperature in the various months at stations in Northern and Western Canada.

	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Summer Mean.
Fort Macleod	20.3	18.5	25.1	42.6	50.6	57.3	64.5	62.8	53.0	42.5	28.7	27.3	61.5
Calgary	12.3	13.5	23.9	40.0	49.1	55.3	60.6	57.5	50.2	41.9	25.6	20.4	57.8
Edmonton	7.0	9.8	22.3	41.0	51.5	57.1	61.2	59.1	50.0	41.5	24.0	16.6	59.1
Medicine Hat	11.3	12.7	25.6	44.9	53.0	61.3	68.1	66.4	55.8	45.6	28.2	20.4	65.3
Prince Albert	4.1	2.1	12.3	37.1	49.3	57.5	61.8	59.0	49.0	38.1	17.6	5.0	59.4
Qu'Appelle	0.3	0.8	14.6	38.2	50.2	59.3	64.0	61.7	51.9	40.6	21.1	9.5	61.7
Winnipeg	3.8	1.5	14.9	38.9	51.7	62.0	65.8	62.7	53.7	40.9	21.0	5.4	63.5
Dunvegan	10.2	4.4	10.0	38.2	50.5	56.5	61.3	57.4	46.3	33.1	18.6	1.6	58.4
Chipewyan	12.0	6.8	5.1	28.5	44.5	54.0	61.5	58.2	45.2	33.7	11.1	2.2	57.9
Norway House	9.4	6.8	7.6	32.1	46.5	55.4	62.4	59.7	49.0	35.8	16.6	2.1	59.2
Fort Hope	6.6	4.8	7.7	31.0	44.2	54.4	61.3	59.1	48.4	36.5	19.2	0.6	58.3
Moose Factory	4.0	1.2	10.0	27.3	41.6	55.2	61.6	58.6	51.7	40.4	21.0	3.3	58.5
York Factory	18.8	14.0	0.2	21.5	34.6	48.0	55.7	53.4	43.7	28.4	10.5	10.1	52.4
Fort Churchill	20.2	15.6	3.0	22.4	32.5	42.8	55.5	52.6	42.3	27.3	7.9	9.0	50.3
Hay River	16.8	10.9	1.5	26.1	41.2	51.3	61.5	58.0	45.5	31.7	7.2	6.0	56.9
Fort Simpson	19.2	17.9	3.2	28.2	43.0	55.5	60.2	55.7	43.5	24.8	0.7	11.2	57.0
Fort Good Hope	28.0	21.8	8.7	16.9	36.7	55.1	59.1	53.5	37.7	17.0	10.9	21.1	55.9
Dawson City	23.6	12.1	5.4	27.7	45.5	57.5	60.4	54.5	41.6	24.1	1.5	10.3	57.5
Peel River	27.5	23.3	7.4	7.7	28.8	51.0	57.7	53.8	36.3	13.9	11.4	17.7	54.2
Herschell Island	19.0	14.0	8.0	2.0	20.0	35.0	43.0	40.0	30.0	11.0	6.0	15.0	39.0
Haileybury	6.4	9.0	12.1	38.3	51.3	61.5	66.2	62.3	54.4	42.5	28.1	11.5	63.3
Abitibi	1.4	2.6	14.2	32.4	46.6	58.1	64.1	60.3	51.8	40.4	24.2	7.1	60.8

Table II.

The average mean highest temperature.

	Jan.	Feb.	Mar.	Apr.	May	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.
Fort Macleod	31.4	29.8	38.5	56.6	64.4	70.9	80.2	78.0	65.6	57.1	39.0	36.9
Calgary	23.1	24.5	35.6	53.2	62.7	68.4	74.7	70.2	63.7	55.1	36.3	30.1
Edmonton	16.7	20.3	33.8	53.1	64.8	69.9	73.8	71.8	62.2	52.9	32.8	25.3
Medicine Hat	21.8	22.7	37.2	58.5	67.9	74.6	82.4	80.9	70.0	59.0	39.1	29.8
Prince Albert	7.5	10.1	25.6	50.2	63.3	70.5	74.5	72.3	61.4	49.3	26.9	15.7
Qu'Appelle	9.0	10.2	24.6	49.3	62.5	71.7	76.6	74.7	64.2	51.2	29.7	18.0
Winnipeg	6.8	10.2	26.2	50.6	65.0	74.4	77.8	75.4	65.9	51.5	30.1	16.4
Dunvegan	2.4	16.9	32.6	52.1	64.9	70.7	75.4	71.0	60.9	43.8	24.7	8.0
Chipewyan	3.5	4.9	15.1	39.4	53.8	64.6	71.0	68.1	53.0	40.1	17.9	10.3
Norway House	0.6	4.2	19.3	42.7	57.4	66.4	72.1	68.6	57.1	42.4	23.8	5.6
Fort Hope	4.0	6.9	20.4	43.2	56.2	67.3	73.3	70.3	58.3	44.7	26.2	8.5
Moose Factory	7.2	11.4	23.2	37.7	51.4	66.6	72.4	69.0	61.0	47.8	28.1	13.2
York Factory												
Fort Churchill	12.3	8.5	4.1	31.6	40.0	54.8	66.8	61.8	50.7	33.1	12.4	4.3
Hay River	8.1	0.1	15.1	38.4	52.7	63.0	73.5	69.7	56.5	39.7	14.6	1.5
Fort Simpson	11.2	7.7	9.5	39.2	53.4	66.1	71.4	66.2	52.7	31.0	6.0	4.1
Fort Good Hope												
Dawson City	16.7	4.3	17.5	39.9	57.1	70.5	72.7	66.1	50.6	30.9	4.5	4.5
Peel River	18.6	13.9	4.1	19.4	37.4	60.8	68.0	64.0	44.1	20.8	4.4	10.5
Herschell Island												
Haileybury	17.6	20.4	31.4	49.8	63.2	73.3	77.0	73.1	65.1	51.3	35.0	20.6
Abitibi	13.1	15.2	26.1	41.8	55.6	66.9	72.5	68.6	59.3	47.3	30.7	16.3

Table III.

The average mean lowest temperature.

——	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Fort Macleod	9.1	7.2	11.8	28.7	36.8	43.7	48.8	47.7	40.4	31.9	18.3	17.7
Calgary	1.6	2.4	12.2	26.8	35.5	42.2	46.5	44.8	36.7	28.6	14.8	10.6
Edmonton	2.7	0.6	10.9	29.1	38.2	44.3	48.6	46.5	37.8	30.1	15.2	7.9
Medicine Hat	0.9	2.7	14.0	31.2	41.2	48.0	53.9	51.8	41.7	32.3	17.2	10.9
Prince Albert	15.7	14.2	0.9	24.0	35.4	44.4	49.1	45.6	36.5	26.9	8.2	5.6
Qu'Appelle	9.6	8.7	4.6	27.0	37.9	46.8	51.4	48.7	39.6	30.0	12.5	1.0
Winnipeg	14.5	13.1	3.6	27.2	38.4	49.6	53.9	50.0	41.5	30.3	11.8	5.6
Dunvegan	22.0	8.8	7.9	24.6	34.0	41.7	47.2	45.5	34.5	23.6	9.7	10.7
Chipewyan	20.4	18.7	5.0	17.6	35.1	43.3	51.9	48.2	37.3	27.3	4.2	5.9
Norway House	19.4	17.9	4.0	21.5	35.5	44.4	52.7	50.7	40.9	29.2	9.4	10.7
Fort Hope	17.2	16.5	4.9	18.7	32.2	41.4	49.4	47.9	38.4	28.3	12.2	9.8
Moose Factory	15.2	13.7	3.2	17.0	31.8	43.9	50.8	48.2	42.3	32.9	14.0	6.5
York Factory	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fort Churchill	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hay River	25.6	21.7	12.2	13.8	29.7	39.6	49.5	46.4	37.5	23.7	0.2	13.4
Fort Simpson	27.3	28.1	16.0	17.1	32,5	44.9	49.1	45.4	34.4	18.6	7.4	18.4
Fort Good Hope	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dawson City	30.5	20.0	6.7	15.6	32.9	45.2	48.1	42.9	32.5	15.9	7.4	16.4
Peel River	34.9	32.6	19.2	6.9	20.1	40.7	48.0	42.2	28.3	7.7	17.4	24.9
Herschell Island	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Haileybury	4.7	2.3	7.2	26.9	39.5	49.7	55.3	51.5	43.8	33.6	21.2	2.4
Abitibi	10.3	10.0	2.2	23.0	37.6	49.3	55.7	52.0	44.4	33.5	17.8	2.1

Table IV.

The absolutely highest temperature in each of the various months, on record at the Meteorological Office.

——	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.
Fort Macleod	58	62	82	83	89	98	102	97	89	85	79	77
Calgary	59	59	75	78	90	94	95	95	89	85	70	60
Edmonton	57	62	72	84	90	94	94	90	86	82	74	56
Medicine Hat	62	64	75	94	94	107	108	103	93	93	78	68
Prince Albert	53	52	62	84	90	96	93	94	87	79	66	58
Qu'Appelle	44	50	65	84	92	100	100	100	91	85	73	49
Winnipeg	40	46	62	90	94	101	96	103	99	85	60	45
Dunvegan	48	52	76	75	94	87	93	90	78	70	59	46
Chipewyan	45	46	47	69	83	90	93	89	79	66	56	49
Norway House	39	36	50	75	91	89	88	90	80	75	57	38
Fort Hope	38	42	55	71	87	92	93	99	89	83	56	38
Moose Factory	40	42	57	72	88	93	97	87	91	81	62	38
York Factory	30	27	45	72	80	89	91	88	77	60	51	32
Fort Churchill	16	29	40	61	80	82	88	82	82	60	45	39
Hay River	47	48	58	74	85	95	96	90	89	72	51	39
Fort Simpson	32	34	54	62	84	82	87	82	78	60	41	45
Fort Good Hope	26	32	45	63	80	82	86	81	66	49	45	24
Dawson City	21	29	52	67	85	90	95	86	79	62	46	38
Red River	37	35	46	52	74	85	89	82	73	46	35	45
Herschell Island	36	35	38	33	53	65	69	64	55	33	26	28
Haileybury	48	47	71	79	93	89	99	90	91	80	67	47
Abitibi	42	46	62	70	77	94	93	86	87	76	68	48

Table V.

The absolutely lowest temperature in each of the various months.

——	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Fort Macleod	41	49	33	10	5	30	37	29	20	4	38	43
Calgary	48	49	34	14	12	26	31	28	15	7	31	39
Edmonton	57	57	40	10	11	25	33	28	12	10	44	45
Medicine Hat	51	51	38	16	12	31	36	32	17	10	36	50
Prince Albert	67	70	43	23	13	26	33	22	14	8	35	57
Qu'Appelle	48	55	45	24	10	25	36	27	10	12	30	41
Winnipeg	46	47	37	13	14	21	36	30	17	3	33	42
Dunvegan	62	55	52	27	12	17	31	23	20	6	28	47
Chipewyan	55	56	41	22	3	24	26	25	13	2	33	48
Norway House	63	54	47	11	12	26	32	30	14	2	35	42
Fort Hope	54	52	47	27	1	25	30	27	16	4	38	47
Moose Factory	45	44	45	21	7	23	31	34	27	12	20	41
York Factory	56	60	51	21	0	23	30	28	6	16	40	60
Fort Churchill	57	52	52	28	10	.....	.....	.....	15	17	38	45
Hay River	62	59	48	31	10	25	35	26	4	10	38	47
Fort Simpson	62	54	50	13	9	27	31	24	11	8	41	49
Fort Good Hope	72	67	54	31	11	24	34	27	1	35	52	60
Dawson City	68	62	54	38	5	27	35	20	1	10	48	50
Peel River	68	61	56	48	10	26	32	25	5	26	50	59
Herschell Island	52	51	40	29	11	12	27	26	8	16	32	39
Haileybury	40	38	34	1	17	28	36	30	24	14	17	34
Abitibi	46	44	42	9	9	28	37	34	27	12	16	45

Table VI.

Showing the total average annual precipitation (rain and melted snow).

——	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sep.	Oct.	Nov.	Dec.	Year.
Fort Macleod	0.44	0.41	0.75	0.51	2.00	2.20	1.80	1.35	1.14	0.48	0.68	0.37	12.17
Calgary	0.47	0.62	0.76	0.63	2.24	2.96	2.88	2.59	1.32	0.49	0.78	0.62	17.36
Edmonton	0.65	0.73	0.68	0.88	1.88	2.83	3.47	2.04	1.48	0.66	0.61	0.73	16.64
Medicine Hat	0.63	0.68	0.69	0.66	1.80	2.69	2.09	1.56	1.16	0.54	0.87	0.55	13.92
Prince Albert	0.89	0.73	1.00	0.79	1.56	2.59	2.28	2.07	1.33	0.76	0.99	0.66	15.65
Qu'Appelle	0.61	0.85	0.89	1.15	1.98	3.45	2.64	1.75	1.42	0.98	0.87	0.66	17.45
Winnipeg	0.83	0.93	1.07	1.55	2.31	3.43	3.03	2.55	2.11	1.61	1.06	0.92	21.40
Dunvegan	1.49	1.00	1.58	0.58	1.91	2.92	1.44	2.56	1.35	1.43	1.13	0.99	18.68
Chipewyan	0.86	0.55	0.66	0.64	0.72	1.57	2.53	1.84	1.47	0.75	0.87	0.74	13.20
Norway House	0.78	0.70	1.01	0.84	1.24	2.40	3.33	2.42	2.27	0.77	1.10	0.88	17.66
Fort Hope	0.80	0.50	0.70	0.23	0.95	1.78	2.28	1.81	2.28	1.02	1.06	0.80	14.21
Moose Factory	1.02	0.62	1.43	1.13	2.40	2.47	2.52	3.03	2.95	1.97	1.55	1.14	22.23
York Factory	0.63	0.35	0.40	0.83	1.13	1.90	.....	.....	2.64	1.51	0.69	0.61	.....
Fort Churchill	0.30	0.50	0.60	0.80	1.30	1.77	1.78	.....	.....	1.41	0.80	0.30	.....
Hay River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Fort Simpson	0.70	0.50	0.60	0.70	3.00	2.08	1.89	1.40	1.00	1.30	1.10	1.20	15.47
Fort Good Hope	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dawson City	0.90	0.75	0.30	0.50	0.94	0.82	1.77	1.85	1.60	1.25	0.75	1.15	12.58
Red River	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Herschell Island	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Haileybury	2.17	1.99	2.29	1.74	2.08	3.42	3.80	2.81	3.51	2.83	2.29	2.37	32.30
Abitibi	1.67	1.15	2.65	1.11	2.73	2.95	2.39	2.56	2.01	2.92	2.16	2.13	26.43

APPENDIX No. 2.

NOTES ON A POSSIBLE RAILWAY ROUTE FROM COCHRANE TO JAMES BAY.

While I have for reference no reports on the subject of possible railroad routes from Cochrane to James Bay, I understand that in the past three alternatives have been mentioned. The first of these would, to a large extent, I believe, follow the shores of the Abitibi River itself. The second would lie to the east of the Abitibi River. The third would follow the ground lying between the Abitibi and the Mettagami.

Of the country to be traversed by such a line between the latitude of New Post and Cochrane, I can speak only from hearsay, and from what I have seen in reports of the Ontario Government Exploration of 1900. From these sources of information I gather that, for railway purposes, the grounds south of New Post and between the Abitibi and the Mettagami will be found, generally speaking, to differ not greatly from that lying to the north of New Liskeard. An island in the Frederick House River, at a point of a few miles south of its junction with the Abitibi, affords an easy crossing of that stream. Between the Lobstick and the Long Portage there is a change of elevation indicated on the maps as about 26 feet per mile. It is probable that a moderate amount of reconnaissance work would discover a route such as would negotiate this piece of ground successfully. Incidentally, and without having taking any actual measurements, the general elevation above the river of the country, immediately north of the Long Portage, appeared to be greater than that to the south of the Lobstick, a fact which may considerably affect the question of gradients between these two points.

These two features were the chief points observed in merely passing down the Frederick House and the Abitibi Rivers in a canoe. But of the area lying to the north of New Post I can speak with certainty. On the accompanying map, No. 3, are indicated all creeks, crossed by traverses in this area, as well as the depths of muskeg that will be met with. The secondary drainage depressions can be more easily crossed at a distance of 1½ to 2 miles from the river than at any point within ¼ mile of the shore. At a distance of ½ to 2 miles inland none of these streams will require structures of any considerable size.

The following conclusions summarize conditions that will be found along approximately 135 miles of possible line between New Post and Ship Sands Island.

(1) That a line showing easy (Max. .5%) grades and curvature (Max. 3°) can be secured without difficulty.

(2) That apart from traffic considerations a "river" line should not be seriously considered. (See Foot Note.)

(3) That a scarcity and possibly an absence of ballast may be expected on the northern section for possibly a distance of 90 miles. More careful examination may to some extent modify this statement.

(4) That the crossing of the Moose River is the outstanding consideration, regarding which information is lacking.

(5) That in point of cost, a correct estimate may be had by comparing the route, mile for mile, with those parts of the main line and the Porcupine Branch of the T. & N. O. Ry. through similar country.

(6) That intermediate soundings in the muskeg between the ranges indicated may be interpolated with perfect safety.

In conclusion, it might be well in projecting a line to keep in view such reaches of the Abitibi or Mettagami Rivers as are adapted to navigation by small steamers. It should also be remembered that if the country south and west of James and Hudson Bays is ever opened up, such settlement will be to the west rather than to the east of the Abitibi River. Considering the apparently superior terminal accommodation to be had at the mouth of the Moose River, there seems little to justify a line to the east of the Abitibi. Such a line would either lead to Hannah Bay or would involve two additional river crossings (both over the Abitibi) in order to again reach the north shore of the Moose River.

NOTE.—All the way north from New Post, and for a considerable distance south of that point, there have been many slips in the clay banks, sometimes five or six to the mile—and some of them at considerable proportions. I have waded across the toe of some of these slides when at every step one sank above the knees in the greasy blue clay. The point of the whole matter is, however, this:—In nearly every instance where slides of this kind have occurred, the areas that have been displaced are at points at which bush fires have removed the retaining influence of timber and of sod. In the case of a cleared right of way, the resulting conditions can be easily imagined. In point of mileage a line following down midway between the Abitibi and the Mettagami, and thence along the north shore of the Moose River, to a point opposite Moose Factory, is approximately 116 miles in length. The corresponding length of a river line, scaled from a map of the Abitibi River, of 40 chains to the inch, is 117 miles.

Potato Patch. Moose Factory.

Mr. Hally's House—Revillion Bros.

APPENDIX No. 3.

REFERENCE TO GEOLOGICAL HISTORY AS THROWING LIGHT ON PRESENT CONDITIONS OF COUNTRY LYING SOUTH AND WEST OF JAMES AND HUDSON BAYS.

The present geographical and topographical conditions as they exist to-day to the south and west of James and Hudson Bays may be attributed to the movement of ice during the glacial period which occurred hundreds of thousands of years ago. There is some difference of opinions regarding certain details, but there is no doubt that at least one, and possibly two, great glaciers at one time covered the whole of North Eastern Canada. One of these glaciers had its centre somewhere in the north of the Labrador Peninsula, and, moving in a south-westerly direction, swept the southern part of James and Hudson Bays and a part of Keewatin, finally stopping in the vicinity of the Nelson River and Lake Winnipeg. Then, before this glacier from the North-East began to retreat, another sheet of ice, having Northern Keewatin as its centre, at a point probably near Chesterfield inlet, moved southward along the face of the first glacier. As these glaciers, influenced by the gradual change in climate conditions, melted away, there formed along their southern face more or less extensive lakes. In these lakes there was deposited by gradual erosion and subsequent sedimentation, extending over a long period of time, a part at least of the great clay deposits of the coastal plain. The deposits laid down at this time were, however, probably for the most part of the nature of boulder clays.

As the southern face of the great sheet retreated still farther north, the sea gradually invaded what had formerly been a vast fresh water lake. Thus, at one time the shores of what are now known as James and Hudson Bays extended much farther south and west than they do to-day, and it is probable that the break in the land surface, which at present marks not only the northern limit of the archean rocks, but also the southern limit of the coastal plain, at one time constituted the shores of these northern waters. The elevation of a line, drawn along the northern limit of the Archean formation, is some 500 feet above the present level of tide water, and to this extent have the waters of James and Hudson Bays retreated during a period probably not exceeding 10,000 years. It was during this period that the clays which to-day cover such a large part of the coastal plain were deposited, as the result of gradual erosion and sedimentation. Hence these clays must be regarded as a sea deposit.

Topographically, then, as well as geographically, this most northerly part of Ontario is comparatively "young," and, as is the case with all "young" countries, there has as yet not been time for a "mature" drainage system to be developed. The rivers have not as yet intrenched themselves deeply, their banks are steep and sharply defined, and, as a result, the effective drainage is limited to comparatively narrow areas along either shore. Ultimately, these abrupt banks will develop into wide, easy slopes, affording drainage for correspondingly long distances, but for the present artificial means must be adapted to supplement the defective drainage system.

APPENDIX No. 4.

SOME NOTES ON THE PRESENT RATE OF SETTLEMENT OF THE CANADIAN NORTH-WEST.

In a pamphlet published in January, 1909, by the Forest Service of the United States, certain statements were made which appear to be worthy of careful consideration. This pamphlet is entitled "The future use of land in the United States," and the conclusions arrived at, while applied to the United States, are also interesting as indicating what we in Canada may also expect.

The writer of the article points out that by 1950 the United States will have a population of 150,000,000 people, and this is considered a conservative estimate. Some estimates run as high as 200,000,000. It is further pointed out that, in order to provide for the necessities of such a population, that demand for land by Americans coming into Canada is going to increase at a rate that we little realize. I do not think it an extravagant opinion to express that all the agricultural land in Canada—and not only that in Western Canada—will be enhanced in value, and will be very considerably in demand long before 1950 by reason of this over-crowding in the United States. In this connection it is also of interest to consider the question of increase of American population. The census of 1900 showed an increase in the United States of fifteen times the population of 1800. The population of Europe scarcely doubled in that time. With respect to the growth we may look forward to in Canada, we should have a somewhat similar experience to that of the United States. We have their population to draw upon, while they draw their population from across the Atlantic. Their increase in population is nearly half the total increase, the figures being 31,000,000 by immigration and 35,000,000 by natural increase.

It is not within my province to take up the possible colonization of Northern Ontario. But, in conclusion, I would ask you to consider the following statistics with reference to the land in the provinces of Manitoba, Saskatchewan, and Alberta. Incidentally I may note that the northern boundary of Manitoba lies at present along the 53° of parallel, and those of Saskatchewan and Alberta along the 60th parallel. It is obvious then that north of the limits of these three provinces, little agricultural land need be looked for.

In 1911, the total areas surveyed into sections in these three provinces, all water covered lands deducted, was 143,295,555 acres. If road allowances, forest reserves and Indian reserves were added, the figure would be increased to 153,797,984 acres.

From the above total surveyed acreage we must deduct:—

Total area under homesteads, S.A.V. homesteads, pre-emption and purchases homesteads	55,611,520
Total area granted to Ry. Companies on account of land subsidies	31,864,074
Total area school land endowment	7,963,254
Total area granted H.B. Company	6,575,400
North-West half-breed scrip, and Military scrip and Manitoba swamp lands	11,952,053
	114,166,301

Thus the total amount of surveyed land in the north-west still open for homesteading is 29,129,254 acres. As to the remaining land areas still unsurveyed, a large proportion has not yet been explored except in a very partial way. But from what is now generally known of the character of this unsurveyed land, the area available for some form of agriculture, though of much less average value than the lands surveyed to date, may be given as follows:—

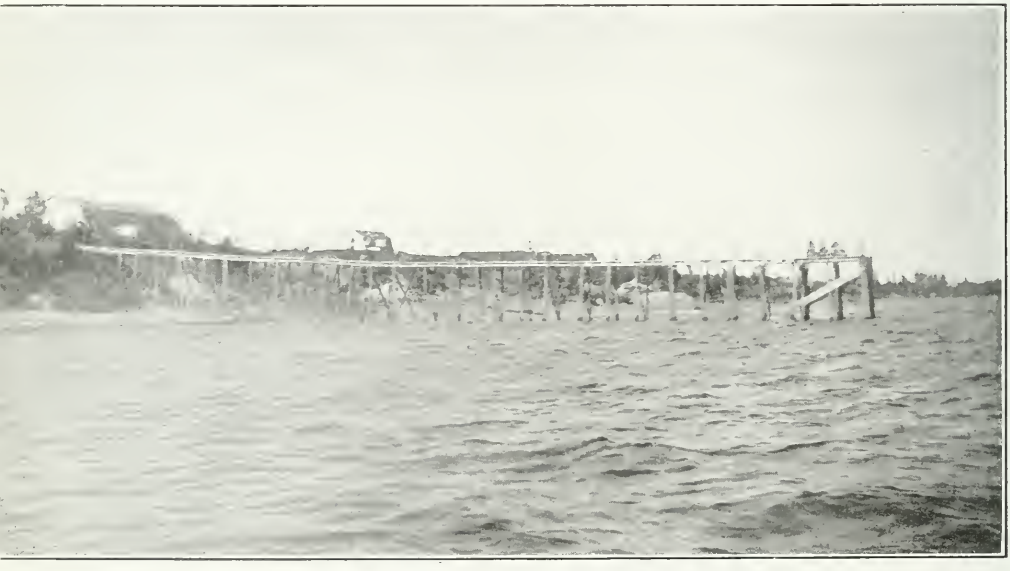
Manitoba	10,000,000	acres.
Saskatchewan	18,000,000	"
Alberta	60,000,000	"
Total	88,000,000	"
Territory to be added to Manitoba	10,000,000	"
Total	98,000,000	"

To arrive at the area of farming land, fairly equal in productiveness to the settled area, this figure of 98,000,000 has been cut in half by those competent to judge. We then have a grand total of available surveyed land and unsurveyed land in North-Western Canada made up as follows:—

Land surveyed still open for homesteading	29,129,284
Land unsurveyed and of more or less uncertain agricultural value, the greater part lying to the north of the 54th parallel	49,000,000
Total	78,129,284

During the period 1905-1910 the total number of homestead entries was 70,424, or an equivalent of 11,267,840 acres. During the period 1900-1905, the acreage taken up in this way was 5,520,480 acres. If now we only assume the same rate of increase that took place in 1905-1910- to apply to 1910-1915, the amount of free land for homesteading at the end of 1915 will be 17,861,414 acres, and before the end of 1923 all the land at present surveyed in the North-Western Provinces will have been taken up. If we take into consideration also the 49,000,000 acres still unsurveyed, and of which the greater part lies to the north of the 54th parallel, this period can be extended to about the end of 1945. As a matter of fact, the rate of increase in homesteading will probably increase much more rapidly from 1910-1920 than it did from 1905-1910, and it is thus likely that both the dates, 1923 and 1945, will have to be considerably modified. A very large percentage of the area referred to is, of course, not as yet under cultivation. My figures are merely intended to illustrate the outlook in the West from the point of view of the prospective homesteaders.

Butler's Island—Looking down stream. Revillion Bros.' schooner from Wabitgut.



Revillion Bros.' Wharf, Moose River.

APPENDIX No. 5.

NOTES ON THE NAVIGABILITY OF HUDSON BAY AND HUDSON BAY STRAIT.

Considering the possible harbor facilities at Moose River as merely constituting one feature of a general scheme of transportation, the following remarks may be of interest:

The geographical advantages of the so-called Hudson Bay route are at once obvious to anyone who has looked at a globe, and has realized that the Canadian North-West is not farther from England than is Eastern Canada. The distance from the mouth of the Moose River to Liverpool is 2,926 geographical miles, while the distance from Montreal to Liverpool is 2,760 miles. As a matter of fact, a route, say from Edmonton, or Saskatoon to Liverpool, *via* Winnipeg, Fort William and Montreal, really involves a detour equivalent to 1,000 miles, the greater part of which is rail haul.

For nearly 100 years the Hudson Bay route constituted the main highway between English ports and the Canadian North-West. It was largely through the advantages due to this fact that the Hudson Bay Company was enabled to win out in its competition with the North-West Trading Company, whose headquarters were of necessity in Montreal. Gradually, however, with the increase and improvement of transportation facilities in Canada and the Eastern States, the southern route first successfully competed with, and then on the completion of the C. P. R. having demonstrated its ability to handle all traffic offering from the West, it entirely superseded the Hudson Bay route. But of recent years the capacity of existing lines of transportation has become less and less able to handle the exports and imports of the West, and it has been even claimed that not more than 20 per cent. of the Western wheat crop can leave Fort William before the close of navigation. Moreover, during the harvest season, with the Westward traffic more or less demoralized, merchants complain of the difficulty in getting in their stocks for the fall trade. An answer to the question regarding the practicability of the Hudson Bay route has thus in recent years become more and more pressing.

So far as Hudson Bay itself is concerned, there is no question but that its waters are safe for navigation for quite six months of the year, or even longer. As a matter of fact, the real difficulty lies, not in the Bay, but in the Strait itself. With the object of attempting to demonstrate what may be expected in regard to the open period of navigation, several expeditions have at various times been despatched north in an endeavor to ascertain the true conditions prevailing in Hudson Strait. These expeditions arrived off the entrance of the Hudson Strait early in the season, and at the first opportunity pushed through to Hudson Bay. They then returned eastward to the Atlantic, repeating these trips east and west, until compelled by ice conditions to consider the route as no longer practicable.

Hudson Strait has a length of 480 miles from east to west. It has a practicable channel at least 35 miles wide, with from 50 to 200 fathoms of water: thus, there is no danger from stranding on the shores, and, moreover, a number of safe harbors exist, both on the north and south sides of these straits. In short, if situated in more southern latitudes, the route would be considered an ideal one for the navigator.

Stoney Point, Moose Factory to Hannah Bay.

Lunch—Ship Sands.

The Hudson Strait may be said never to freeze solid, although its waters are unnavigable for ordinary ships during spring and winter months owing to great sheets of heavy ice moving backwards and forwards under the influence of tides and currents. It is probable that a specially constructed ship might navigate Hudson Strait at any period of the year, although in the winter and spring, for at least seven months, such a voyage would be long and difficult. Ice attains a maximum thickness of six feet, but, when "rafted" sheet on sheet, it may have a total thickness of 25 feet. Ice does not begin to melt until well on in June, and is not sufficiently melted for safe navigation with ordinary steamers until the middle of July. In 1903 and 1904, Mr. A. P. Low, commanding the C.G.S. "Arctic," carefully investigated conditions affecting opening and closing dates for navigation, and the results of his work are summarized as follows:—

"The period of safe navigation for ordinary iron ships through Hudson Straits and across Hudson Bay to Churchill may be taken to extend from the 20th of July to the 1st of November. This period might be extended without much risk by a week in the beginning of the season and perhaps by two weeks at the close."

Chief navigable streams draining area between Cochrane and Quebec boundary.

Name of river.	Navigable length.	No. of portages.	Where emptying.	Total miles.	Total portages.
Abitibi					
Moose River	340	15	James Bay		
Harricanaw	250	11	James Bay	490	26
Minor tributary rivers, navigable for 20-50 miles in same areas as above.					
Circle River	20	Portages not indicated on maps.	L. Abitibi		
Law Bush	30		"		
Misbougo	40		Into Abitibi R.		
Sucker	45		" " "		
French	75		" Moose R.		
Little Abitibi	80		" Abitibi R.		
West River	55		James Bay	345	
Chief navigable streams between Cochrane and Manitoba boundary.					
Frederickhouse R.	50	6	Into Abitibi		
Mettagami	280	13	" Moose		
Ground Hog	125	3	" Mettagami		
Kapuskasing	90	4	" "		
Opazatika	115	16 (?)	" Missainibi		
Missainibi	265	14	" Moose		
Kabinokagami	175	13	" Kenogami R.		
Oba R.	50		" Kabinokagami		
Nagagami	105	17	" Kenogami		
Pagwachuan	120	7	" Kenogami		
Kenogami	340	14	" Albany		
Drowning R.	160	14	" Kenogami		
Little Current R. and Kawaakagama	190	29	" Kenogami		
Ogoki	230	15			
English	200	7	" Winnipeg R.		
Wabigoon	90	3	" English R.		
Winnipeg R.	50	1			
Albany	535	not marked	" James Bay	3,040	176

Minor navigable streams in same area as above.

Poplar Rapids	30	4			
Driftwood R.	50	2			
Mattawishkwia	50	1			
Kapitongra	75	not given			
Pallinade R.					
Pushagoon					
Root R. Route	75	23		380	30

SUMMARY OF ABOVE.

Total miles navigable streams east of Cochrane—835 miles, with 26 portages.
" " " " west " " —3,320 miles, with 206 portages.
" " " Quebec-Manitoba—4,165 miles, with 232 portages.

ADDENDUM.

The originals of the maps accompanying this Report are drawn to scale 800 feet to the inch, but as they have been reduced two and one-half times, the scale is 2,000 feet to the inch.

Report on the Geology of the Area along the T. & N. O. Railway

TRIAL LINE BETWEEN GOWGANDA AND PORCUPINE

By J. G. McMILLAN.

INTRODUCTION.

General Statement, Object and Methods of Work.

In June, 1911, Mr. W. B. McPherson was instructed by Mr. S. B. Clement, Chief Engineer of the Temiskaming and Northern Ontario Railway, to join Mr. W. R. Maher, Locating Engineer, at Gowganda and report on the geology of a territory along a trial line to be run from Gowganda to Porcupine. Nearly a month was spent in a reconnaissance south to the headwaters of the Sturgeon river, and on July 10th the party started the survey from Gowganda north. During the months of July and August the line was run through the townships of Van Hise, Rankin and Doon, and two lines which had to be abandoned were run into the south-east corner of Midlothian. The geological work was continued by the writer during the next three months, exclusive of the first half of October, which was spent in accompanying Mr. Maher in a reconnaissance of the valley of the Sturgeon. The line was run in a general north-west direction towards Wawaitan Falls on the Mattagami river: and this permitted of the mapping of a strip of country about a dozen miles in width between the Gowganda area, which was reported upon in 1908 by Mr. A. G. Burrows,[1] for the Bureau of Mines, and by Mr. W. H. Collins.[2] for the Geological Survey, and the Porcupine area mapped in 1910 by Messrs Burrows and Rogers,[3] for the Ontario Bureau of Mines.

Acknowledgment is due the Provincial Geologist and members of his staff for assistance in this report and the accompanying map.

The object of the survey was to obtain a knowledge of the topography of the region, particularly in relation to railway building, and of its resources in timber, mineral and agricultural land.

The method followed in the field was to travel along the townlines, the last of which were being run this year, and along the trial line and make note of the adjoining territory. Canoe routes which intersect the area in different directions were followed in so far as time permitted, and fairly accurate surveys of them made by compass and time allowance. The townships which are not served by canoe routes were traversed on foot and a paced compass survey of the route made, the mapping being done at once in conjunction with the notes in a cross section book.

[1] Bureau of Mines., 18th Annual Report, Part II.
[2] Geol. Survey Can.; Preliminary Report of W. H. Collins, 1909.
[3] Bureau of Mines, 20th Annual Report, Part II.

Location and Area.

The quadrangle through which the line runs diagonally from Gowganda, N. Lat. 47 degrees 40 minutes and W. Long. 80 degrees 47 minutes, to Wawaitan Falls, N. Lat. 48 degrees 20 minutes, W. Long. 81 degrees 29 minutes, has a length north and south of 48 miles and a width of 33 miles. It lies partly in Nipissing and partly in Sudbury District, and forms part of the Temagami Forest Reserve. The six townships of the Gowganda sheet of the Bureau of Mines, include the township of Van Hise in this area; and the Gowganda sheet of the Geological Survey includes also the townships of Rankin, Raymond and Knight. The tier of townships east from Wawaitan Falls are shown in outline on the map of the Porcupine Gold Area; and during the past season the work of the Bureau of Mines has been continued to include the township of McArthur where recent gold discoveries have been made. The intervening forty miles of the sixty in a direct line between the two objective points is the part chiefly dealt with in this report.

Means of Access.

The easiest route is by gasoline boat on the Mattagami river from the Landing to Wawaitan Falls, thence the Grassy river is reached by a three mile portage from the creek which joins the Mattagami two miles above the falls. The Mountjoy creek has been cut out and used by prospectors during the past season for bringing in their supplies from the same starting point. From Porcupine the township lines form the readiest means of access for those not too heavily laden, and the best toboggan trails in the winter.

In the eastern part of the area, Night Hawk lake and river have been used to reach Kitchimine lake and points on the District Line. The southern part is reached from Duncan lake and the Montreal river by portage routes across the height of land to the different branches of the Grassy river, or from Mattagami Post by a six mile road to Sinclair lake and the Grassy river. From the North branch of the Grassy in the south of Zavitz township a lake and two portages connect with the Redstone river; and from the latter stream in the south of Bartlett a chain of seven lakes provide a good canoe route in a north-north-westerly direction across that township to the Mountjoy creek. From Papakomeka lake in this stream, six miles north, a portage route leads to two lakes in Fripp township and to the Grassy river near the High Falls. From Mushkasenda lake, the source of the stream, another cross route through Telluride lake connects with Kapiskong; while from the south end of the lake a chain of clear water lakes form a route to Sinclair lake.

Early Surveys and Recent Prospecting.

Previous to 1867 the region may be considered an Indian hunting-ground, traversed only by fur-traders going to and from Matachewan. In that year a line was surveyed by P. L. S. Duncan Sinclair from the forks on the Montreal river, five miles below that Post, to Kenogamissee Falls on the Mattagami river. Austen's Canadian Pacific Trial Line in 1880 crossed the area further to the north by way of Mushkasenda and Kitchimine lakes to the Great Northern Bend on the Montreal river. In 1896 the Nipissing-Algoma boundary line,—now the Sudbury-Nipissing line,—was run in this part by O.L.S. Alexander Niven, and the report of the accompanying geologist, Mr. E. M. Burwash,[1] accurately describes the

[1] Bureau of Mines, 6th Annual Report.

rocks occurring along the line. In 1900, Messrs. DeMorest and Sylvester, of Exploration Survey Party No. 3, made a micrometer survey of the Mattagami river down to Niven's Base Line of 1899, and of the Grassy river from its mouth to Peter Long's lake, continued a canoe and log survey up the Grassy from Kapiskong lake to connect with the District line at Little Hawk lake, and from the "Hawk Portages" at the divide, a canoe and compass survey down the Montreal river to Matachewan. The report of J. L. R. Parsons,[1] the geologist on this party, includes a description of the rocks along these streams.

The discovery of silver at Gowganda in 1908 directed prospectors to the southern part of the region. The first claims were staked for asbestos on an area of serpentine rock two to three miles north-east of Mount Sinclair. Other early stakings were made on some Keewatin iron formation a mile and a half east of the middle of Mushkasenda lake. The discovery of gold at Porcupine in 1909 started prospecting in the northern part of the region, and resulted in the staking during the following season of quartz veins on the west side of Mushkasenda, and in the vicinity of Kitchimine lake. The report early in the present year of the finding of telluride of silver and gold in a vein at the former place, led to a midwinter rush and much snowshoe staking. In the latter part of the year the chief centre of prospecting was in the townships of McArthur and Bartlett, about twenty miles directly south of Porcupine, where gold occurs in dikes of quartz porphyry. To meet the requirements of the prospectors in the matter of tie lines, the Surveys Branch has, during the past two years, blocked off the whole area into six-mile townships; and as previously mentioned, the Bureau of Mines has endeavored to supply them with maps indicating the geological boundaries. The rush of prospectors to the south and west of Porcupine has extended so far, however, that guide maps of the canoe and portage routes are supplied by two firms of surveyors, and find a ready sale.

[1] Report of Survey and Exploration of Northern Ontario, 1900, p. 107.

SUMMARY AND CONCLUSIONS.

The area forms a part of the great Archean Shield; and as such is underlain by the very oldest rocks, the surface of which through long exposure to severe denudation has been reduced to a peneplain, leaving only a few resistant knobs at elevations of 100 to 200 feet. This basement consists of the Keewatin series of altered eruptives, a fragmental series composed chiefly of Keewatin materials folded with the Keewatin and generally resting at high angles, a series of acid instrusives comprising granite, porphyry and gneiss, and minor basic dikes which intrude all the other rocks.

In the vicinity and to the south-east of the height of land, these rocks are overlain by areas of Huronian sediments which dip at small angles to the east and south-east. These form ridges with abrupt western faces rising from 300 to 500 feet above the general level which at the divide is about 1,200 feet above sea level. They resemble those of the Cobalt district, and include in ascending order, conglomerate, some 300 feet of greywacke interbanded more or less with layers of slate and quartzite, and an upper layer of conglomerate. The lower third of the greywacke is in large part dark in colour and slaty in character, the upper two-thirds, which generally forms the tops of the hills in the district, is reddish in color and banded with quartzite. Diabase occurs in the Huronian as dikes less than 100 feet in width, but the intrusions are unimportant as compared with those of Cobalt or Gowganda.

The glaciated rock surfaces are covered in great part by a mantle of drift of varying thickness, composed of sand and boulders. Very limited areas of clay occur along the upper part of the Grassy river. The largest of these, comprising several hundred acres, lies about the lakes in the northern part of Hutt township, but through the two townships lying to the south, the narrow flats along the river would no doubt be found productive if the water was lowered a foot or two by a cutting at the rapids in the northern part of Kemp township. The prevalence of a surface covering of drift materials over the district makes it more suited for forest than for agricultural land.

Small quartz veins occur in the Keewatin schists in many parts of the area, and in the vicinity of the granitic intrusions, veins of considerable size have been located. Gold has been found in some of these, and in associated porphyry dikes. Their development has scarcely been sufficient to determine whether the gold is in paying quantities. These rocks are receiving much attention on account of the Porcupine discoveries, and will probably repay careful prospecting. Pyrite is found in considerable quantity in the Keewatin greenstone in the vicinity of Moose lake. The iron formation, so far discovered, can scarcely be considered of economic importance. Serpentine rock containing veinlets of asbestos forms a part of the Keewatin in several parts of the district. The limits of these masses should be carefully determined with a view to finding workable veins of asbestos, or deposits of chrome iron ore which often occur associated with this rock.

GENERAL CHARACTER OF DISTRICT.

Relief.

The general aspect of the Archean peneplain is so well known that its description is unnecessary in this report. The northern portion of the district differs from the southern in not having any flat lying sediments resting upon the planed down surfaces of the Archean folds. It presents a surface of low rocky ridges and isolated hills, strewn with glacial drift. The portion along the north branch of the Grassy river in the townships of Halliday, Hutt and Zavitz is generally without elevations exceeding 100 feet. A resistant knob of Keewatin 150 feet high on the portage from Kitchimine lake north to the West branch of the Night Hawk river overlooks the valley of this stream. The high ground about the township corner west of this ends in a granite hill on the contact one mile north; and lower ground, through which the Redstone river runs in a north-easterly direction, extends for some two miles to the north where the ground again rises in ridges of greenstone and serpentine extending to the vicinity of Clear lake. Along the Redstone river in Zavitz township and between this stream and Mushkasenda lake some greenstone ridges show among others formed of glacial sand, which covers a portion of this part to a depth of one hundred feet. From a Keewatin hill in the south-west corner of Bartlett township, looking across the lake, Sinclair mountain and other ridges about the height of land may be seen at a distance of twenty miles to the south and south-east. Six to ten miles to the north of this hill several of less prominence lie between the two branches of the Mountjoy creek. The granite hill at the five mile post on the Fripp-McArthur townline which is the most noteworthy of these, and Serpentine mountain in the centre of McArthur township overlook this stream and the country as far north as Porcupine.

The relief of the southern part of the district is increased by ridges and hills, which represent erosion fragments of faulted blocks of the Cobalt series of rocks. The most prominent of these ridges have heights ranging from 300 to an extreme of possibly 600 feet above the general level of the country, which is here between 1,100 and 1,200 feet above sea level. Sinclair mountain is typical of these ridges. It presents on its western side a bald face about 300 feet high, with the beds of greywacke and slate dipping about 5 degrees to the east, and on its eastern side a slope corresponding roughly to that of the beds. The southern and highest part of this face, known as Mount Sinclair, which lies two and a half miles west and one mile north of the south-east corner of Montrose, has a height of between 300 feet and 400 feet above the divide, which is here at an elevation of 1,200 feet above the sea. From this point the ridge extends with slightly diminishing height beyond the northern limit of the township. The southern end of a similar ridge of equal height and one quarter of the length, lies nearly three miles in a direction N. 20 degrees W. from Mount Sinclair; and that of another of somewhat greater height lies north of this in Hincks township. A minor one of these ridges lies east of Elizabeth lake in the township of Midlothian. These features in the vicinity of the head of Duncan lake have been described by Collins in his report, referred to above as follows:—"The ridge in Doon, as being 400 feet in height with abrupt cliffs on its north-westerly side, and a south-easterly slope corresponding with the dip of the beds; the one in Midlothian, as 350 feet in height; and the one extending south of the townline into Raymond township, as 550 feet in height with steep easterly face." As seen at a distance of one or more miles, the lower

of the two latter blocks would appear to incline to the east, and the higher of the two to be horizontal or slightly inclined to the north. The latter hill is the most prominent feature locally; other conspicuous hills form part of the height of land north-east of Little Hawk lake, and through the next township to the west. Sansawaju, (The square mountain), a round topped hill with square sides resembling Chaminiss in the Larder Lake district, which stands half a mile east of the Grassy river, at 3¼ miles on the townline of Mond and Kemp would appear to be the highest point in the district, as it is the most prominent land mark.

Between these ridges about the head of Duncan lake, an extensive sand plain reaches northward to the vicinity of Sinclair's line which crosses the Montrose-Bannockburn line at 2¼ miles. A creek with two branches, one rising in the north-east part of Midlothian and the other in lakes in Montrose township, winds its way through this plain.

Drainage.

The lakes of this district are of two classes, the one filling depressions in the folded surface of the Archean rocks and the other filling pot-holes and other depressions in the accumulations of glacial drift. The former class are irregular in outline, and usually not more than six miles in extent. The latter are regular in outline, small in extent, and either irregularly placed or in distinct chains which often form connecting canoe routes between the different rivers.

The streams of the area represent a transition from the succession of lake rapids characteristic of those of the greater part of the Archean region, to those of a true fluvial character of the Hudson's Bay basin. They have their rise in lakes of the first type, the only exception being the Redstone which has its source in a chain of glacially formed lakes lying between Mushkasenda and Sinclair lakes, but which afterwards enters basins of the first type.

Three streams—the Whitefish, the Night Hawk, and the Redstone—rise within the district and pursue tortuous, but roughly parallel courses northward to discharge into the Frederick House river through Night Hawk lake. The source of the main Whitefish stream is in the lake on the east side of Mount Sinclair, but another branch rises in lakes in Argyle and Bannockburn townships, and connects by a portage route with a stream which flows into the Montreal river a few miles above the Great Northern Bend. The source of the main branch of the Night Hawk is in Austen and Kitchimine lakes on the District line. The two latter rivers form rather difficult canoe routes in the upper portion of each, and the Redstone in its middle portion, on account of the number of small rapids and the amount of fallen timber in the beds of the streams.

The main stream of the Mountjoy river has its source in Mushkasenda lake, the west branch in Bruce and Quartz lakes in Fripp township, and the east branch in Clear lake in McArthur township. The upper portion of the stream is partly basin and rapid, and partly tortuous creek. In its lower part, it flows in a very tortuous course through sand plain to discharge into the Mattagami river at the Landing. Like the Redstone, the upper portion of this stream was not originally navigated by canoes, but this year the fallen timber has been partially cut out of the stream and portages made past the rapids so as to utilize it throughout the whole of its course.

The Grassy river flows in a circuitous manner about the head waters of the Redstone and Mountjoy rivers, being joined during its course by several branches which rise in lakes in the vicinity of the Height of Land. The North branch of the

Grassy river flows from a long narrow marsh in the township of Zavitz, one and a half miles west of Kitchimine lake, which marsh may also be the source of the West branch of the Night Hawk. It takes a winding course to the south for twenty miles through narrow marshy flats and lake-like expansions, in a flat country. This branch may have once been a part of the Frederick House waters which was reversed in its course by accumulations of glacial materials.

About six miles in a direct line from its source, the stream is joined by the Kiahkusagainda branch, which is one of those shallow tortuous creeks containing much fallen timber so characteristic of the Height of Land country. It flows to the northward out of Kiahkusagainda lake to a shallow expansion named on the plan Seven-inch lake, then to the north-west into Moose lake on the District line, making in this part several crossings of Sinclair's line. From this round lake its course is south-west into one nearly square in shape which has been named Wellington lake, and then westward and northward to the forks. The stretches of creek average about two miles each in a direct line, and the lakes about one mile in length. Short portages are used to pass the rapids at the outlets of the three lakes of the basin type. Within a mile of the forks, the combined stream flows that distance to the westward and rather more southward in an expansion known as Canoe-shed lake. A stream which flows from Washagami lake, within the elbow, and empties into a bay on the west side of this lake, is the only important tributary received by the Grassy in the whole of its course from the inside of the bend. From the outlet of this lake which appears on Sinclair's line the river flows for four miles through burnt country with sandy soil and occassional outcrops of greenstone, then for six miles with a width of one to two chains through a marshy flat with protruding knobs of greenstone, to the branch from Little Hawk lake which joins the main stream in Mond township near the middle of the north boundary.

Considered simply as the Little Hawk branch this stream is little over a mile long, draining a lake three miles in length; but about a mile from its mouth it is joined by another stream, which has its source in the large irregularly shaped lake in the southern part of Midlothian. It flows out of a bay of the lake situated three miles north and two east of the south-west corner of the township, the rapids at the outlet being passed by a portage over half a mile long. Dumb-bell lake on the district line two miles north of the corner, and a small lake north of the townline two miles west of the corner, are parts of this stream.

Below this fork the river bends to the westward but presents the same character. A basic eruptive rock outcrops on the north bank two miles down stream. After entering the township of Kemp at a point 65 chains south of the corner, it winds to the south-west through a grassy flat, passing within a mile of Sansawaju mountain which stands just north of the middle of the east boundary of the township. At an old cabin on the west bank a short distance down stream the soil is quite sandy, and conglomerate of the Cobalt series outcrops on the east bank. The river here again turns westward in a lake expansion a mile long, known as Kebskwashising or Grassy lake, which has an extension three miles southward receiving the waters of the lakes to the south of Sinclair lake. For another three miles in a north-west direction the river maintains its marshy character, then the current quickens and half a mile below the first portage is reached. This is one of five chains on the north bank, here about a quarter of a mile south of the middle of the townline.

The river crosses the line within the next half mile and passes through Loonwing lake, one mile in extent in a north-west direction. A narrows connects with Net lake which extends for a mile to the west and from which the river discharges

by a rapid passed by a 26 chain portage on the north bank. The soil about these lakes is composed of glacial drift, well wooded with mixed timber. In less than a mile the river enters the corner of Sinclair lake, and turning sharply to the north around Indian Point which is timbered with Red and White pine of good size, flows out to the north. Rock was seen at the inlet to the lake but was not examined. Parsons calls it a graphitic slate, and mentions outcrops of flat lying slates in the next two miles down stream. These notes and the fact that boulders of conglomerate are strewn on the last portage would indicate that rocks of the Cobalt series occur in this vicinity.

The section of the river between this point and the canoe-route to Mushkasenda lake was not travelled by the writer. From the description given by Parsons and the plans of the Crown Lands Department, it would appear to consist of several narrow lakes, connected by portions of river occupying a fault line in Laurentian gneiss, running 10 degrees west of north. The largest of these lake portions is the one four miles long in Moher township. Kapiskong is the original name applied to this section, and also to the river below.

In the northern part of Beemer township the river leaves this direct line and makes a circuit of two miles to the west, returning again to it in Peter Long's lake which it enters a mile from the south end. A small rapid in this part is passed by a 10 chain portage. The lake comprises a part four miles long, a narrows formed by high ridges of gneiss, and a part one mile long at the outlet. Similar ridges here cause a succession of heavy rapids, with a total fall given as 30 feet, which are passed by a half mile portage along the top of one of these ridges at a height of about 100 feet. One mile of river is followed by rapids and a quarter mile portage, also on the east bank; then half a mile of river is followed by another rapid and a quarter mile portage near the north townline of Musgrove. Granite was noted at these rapids in a cursory examination made when travelling by canoe.

The river flows with a slow current below low banks through Fripp township. Near the fourth mile on the northern boundary two falls and a succession of rapids make a total descent of over 100 feet. These are passed by a half mile portage on the west bank or by a mile portage on the east side.

Below the High Falls the river has eroded its banks to a depth of 80 to 100 feet, and flows over a gravelly bottom with a current so rapid that this portion is rarely used in ascending the river, a portage being made instead from the Mattagami. The ten miles to its junction with this river provide a magnificent canoe ride in descending the river.

Forests.

Except in parts recently burned the district is well forested. Stony areas or those with a soil composed of glacial material containing many boulders, which in this district are the most extensive, produce a mixed growth comprising the various conifers together with birch and poplar. The sand plains are covered chiefly with Jack Pine. Flat areas and the parts along the water courses are wooded chiefly with spruce and cedar.

White and red pine are the most valuable trees, but their distribution is not extensive, and they grow only on the high ground where they are most liable to be destroyed by fire. Some good blocks found on the ridges about Duncan lake have already been partially destroyed. Similar blocks and patches on the high ground in the western part of McArthur township have suffered greatly from the fires

Falls on Wapus River.

Doon ridge from head of Duncan Lake.

View southwest from Mount Sinclair, showing Kiahkusagainda and Druredin Lakes. Collins Mountain on the left.

Mount Sinclair, through Elizabeth Lake.

Lake lying northeast from Mt. Sinclair.

of the last two summers. Scattered trees are to be found among the other timber on most of the higher ground. Jack pine has the wildest distribution of all the trees, growing as it does with the poplar and birch on the high stony ground and with spruce on much of the low ground. Spruce grows everywhere, but is most plentiful along the streams and lakes. Strips of country wooded chiefly with birch and poplar are probably burnt areas of half a century ago. A strip one to two miles wide, west of Mount Sinclair in the townships of Montrose and Hutt, extending as far as the recent brulé along the Grassy river is likely one of these areas.

The largest area of spruce lies along the North branch of the Grassy river. At the boundary of Hutt and Zavitz townships, this area has a width of a mile on either side of the stream. From the top of Mount Sinclair the whole country from Seven-inch lake north-west to the Redstone, as well as that along the Grassy to the south appeared wooded with conifers. As there was no opportunity of examining this part in detail, it is difficult to form an idea of the proportion wooded with Jack pine and that wooded with spruce.

The north-western part of Zavitz township, for a mile east of the Redstone and north to the lakes on the boundary is mainly old brulé and windfall. The central part of the township is wooded with spruce and mixed timber in alternating strips according as the ground is high or low; but for a mile west and north-west of Kitchimine lake in the north-eastern part, the timber has been burned or blown down.

The country about the south end of Mushkasenda lake, for two miles to the east and two to the south, consists of sand plain wooded with Jack pine mostly under a foot in diameter. The canoe-route leading to Sinclair lake was followed to the south through eight or nine lakes and the connecting portages, starting with two small lakes and portages of twenty, ten and five chains. On the shore of the next lake which is irregular in shape and two miles long, the only rock seen outcropping through this glacial sand occurs as a hill of greenstone. About this lake in the southern part of English township, there is a good growth of mixed timber, with some patches of thrifty young red pine. The lakes on the route in Semple township are surrounded by a sand area, timbered chiefly with young birch and poplar.

The part between Peter Long's lake and Mushkasenda was burned in 1898. This burning may have extended through Musgrove into Bartlett and McArthur townships, as brulé of about this age crosses the Musgrove-Bartlett line and extends for about six miles northward along the lakes and creek. The advent of the prospector has greatly extended these burnt areas in the last two years. So fierce have been the fires of this year that in the townships of Deloro and Shaw even the timber in the swamps has been destroyed. It seems unfortunate that such large areas of timber should be burned for lack of that knowledge of woodcraft which has preserved them as forest for so long a time.

A very small proportion of the timber of the district is of mature age. On the eastern slope of the Mount Sinclair ridge, white pine thirty inches in diameter and spruce a century and a half old are quite numerous. In the ravines running down the slope the cedar are also of large size. Many of the pine trees scattered through the other timber on the high ground, and occurring as clumps among it, appear to be remnants of an earlier forest growth, for none of the other trees are over a century old. The scattered nature of the pine, and the fact that in the northern townships where it is most accessible, the best has already been destroyed, greatly reduces its value. On the whole, the areas of spruce must be considered the best resource in timber of the district.

Commercial Possibilities.

Two water powers are being developed to supply power to the mines at Porcupine; one on the Mattagami river at Wawaitan Falls, and the other at the High Falls on the Grassy river. Both of these provide a head of 100 feet, and an ample supply of water for the development of a larger number of horse power than will be required for some years to some. The thirty-foot fall on the Grassy in Musgrove township and Kenogamissee Falls on the Mattagami, thirty miles above Wawaitan Falls, are other available sources of power. The areas of spruce timber suitable for pulpwood along the Grassy river and its tributaries, and in lesser extent along the other rivers of the district, are a source of wealth immediately available with the aid of these water powers.

GENERAL GEOLOGY.

Outline of Geological History.

The examination of the rocks of the area goes to show that they fall into five main divisions, differing widely from one another.

The oldest division, the Keewatin, consists of metamorphosed eruptive rocks, both intrusive and extrusive in origin. They vary in colour from dark green to grey, and range in texture from soft, fissile, chlorite and sericite schists to altered massive diabase and gabbro. Wherever the schistosity is developed, they dip at angles approaching 90 degrees. Joint planes and torsion cracks are also present in the rocks of some localities. Their dark colour is due to their age and altered character, as much as to the basic nature of the rocks. Distinctly acid types of intrusives, such as quartz porphyries, present much the same uniform green colour, except when very fine-grained, when they look not unlike quartzites. Amygdaloids form part of the rocks of this division in certain localities, and ash rocks have been noted by Burwash in the vicinity of the District line in the southern part of the region. These represent ancient lava flows and deposits of volcanic ejectamenta. Areas of serpentine rocks of considerable extent have been formed from eruptive rocks of the extreme basic type. Iron formation in limited quantity is the only material of sedimentary origin; this may be the result of chemical precipitation. The attitude of the schists indicates that the present surface of the Keewatin is one formed by the planing down, by long-continued erosion and denudation, of an intensely folded region.

The second division comprises a series of fragmental rocks, consisting of conglomerate, greywackes, and a few quartzites, and composed chiefly of worn down Keewatin materials. The conglomerates are sometimes rusty from the presence of included pebbles of cherty iron formation. The largest area of these sediments occurs about Kiahkusagainda lake, on the southwest side of Mount Sinclair. Many observations of the attitude of these beds showed that they dip at high angles, usually between 60 and 70 deg., to the north-east or east-northeast. The strike of the Keewatin schists in the same locality is north-east; so that the present attitude of these beds is, at high angles, nearly transverse to the folds of the Keewatin. They are distinguished from the Keewatin by their fragmental character, which is best seen on weathered surfaces.

Similar rocks in the Cobalt district, which have received considerable attention from Dr. W. G. Miller, have been called by him the Temiskaming series.[1] This name will be adopted in this report. If the term Huronian—so widely used for the pre-Cambrain sediments—were applied to them, they would be classed among the lowest of these rocks.

Considered from an economic point of view, they act as a part of the Keewatin, both at Cobalt and at Porcupine. Structurally, they differ from the Keewatin in not having been subjected to so intense folding.

The third division consists of granites and allied crystalline rocks of considerable variety in composition and structure. They are intrusive into the Keewatin, the immediate vicinity of the contact being characterized by hornblende schists streaked with acidic bands, and the Keewatin to a considerable distance being cut by dikes of porphyry and felsite. Granites do not show at the surface in the region

[1] *Eng. and Min. Journal*, Sept. 30, 1911.

about the Height of Land where the Temiskaming is best developed, nor were they seen cutting any of the isolated patches of this series in the northern part of the district; but the general absence of material of this nature in the fragmental rocks of the Temiskaming point to a later age for the eruptives. In one locality, at the west end of Kiahkusagainda lake, granite pebbles were seen in conglomerate of the Temiskaming series; so that some of these intrusions may have preceded the laying down of the Temiskaming sediments.

The fourth series consists of conglomerates and greywackes similar to those of the Cobalt district. They are distinguished from those of the Temiskaming series by the abundance of granitic material in their composition, by their unaltered character, and by their nearly horizontal attitude. The dip of the beds is generally from 5 to 10 deg. to the east or southeast. Locally, there are exceptions to this; along lines of faulting and in the vicinity of basic intrusions the dip is increased to 20 deg. or even more, and some parts have been altered and hardened. The greywackes vary greatly in composition, and range from impure quartzites at the one extreme to slates at the other.

The youngest rocks of the district are represented by basic dikes, usually less than 100 feet in width. These are not always of typical diabase, but are sometimes quite coarsely crystalline in structure and contain a considerable proportion of red felspar. Only in the Montreal River basin are these intrusives of greater extent, and here they resemble in character the diabase of the Cobalt and Gowganda silver regions. Where, as in the greater part of the district, the Cobalt series is absent, the age of these eruptives is uncertain and can be judged only by their comparative freshness.

Long periods of erosion have preceded the deposition of the sedimentary series and equally long periods have followed since the formation of the later of the two series. The areas of Upper Huronian must be considered as remnants of a much more extensive covering of these sediments. The rock surface over the greater part of the area is covered with an irregular mantle of glacial sand and gravel, and the products of weathering of the present surface.

Table of Formations.

The rocks of the district are all pre-Cambrian in age, and may be classified in descending order as follows:

Basic Intrusives.

Diabase and gabbro dikes cutting all the other rocks.

Cobalt Series (Upper Huronian).

Conglomerate, and greywackes ranging almost from slates to impure quartzites, generally dipping at low angles.

Acid Intrusives.

Granites, syenites and porphyries; all older than the Cobalt series and most of them younger than the Temiskaming series.

Temiskaming Series (Lower Huronian).

Conglomerate, greywacke and quartzite composed chiefly of Keewatin materials, and generally dipping at high angles.

Keewatin Series.

Metamorphosed eruptive rocks, comprising greenstones, quartz-porphyries, amygdaloids and their schistose derivatives, together with iron formation.

Keewatin.

Rocks of Keewatin age occupy the greater part of the rock surface in the district, and would be practically continuous, except for the intrusions of granite, if the Huronian remaining near the Height of Land were eroded. As it is, they cover nearly all of the northern part of the area, and some smaller areas isolated by the overlying sediments.

These rocks present considerable variety in different localities. In general, the areas lying east of Sinclair mountain are characterized by a nearly even development of altered quartz porphyries and greenstones, together with serpentine rocks; the part about the District line by amygdaloids and grey sericitic schists, similar to those of the Pearl Lake area at Porcupine; and the western part, particularly in the vicinity of Mushkasenda lake, by altered diabase and gabbro, together with green schists.

A small area of Keewatin, near the middle of the portage south of Mount Sinclair, contains crystals of tourmaline—still fairly perfect—in a greyish-green ground mass, and appears to be a much altered granite or quartz porphyry.

In the Keewatin area lying west of Dunedin lake, two greenstone hills stand out prominently on the south side of the east and west portion of this body of water. On the shore opposite the schistosity is well marked in a N. 80 deg. E. direction. The shores of the arm extending north-west of the outlet are formed partly of serpentine rock, in which torsion cracks are developed. At the outlet of the Half-mile lake, immediately north-west, an exceptionally heavy weathered grey schist occurs; and at the opposite end of this lake, tale schist strikes E.-N.-E. and dips 70 deg. to the north. Quartz porphyry on the 10-chain portage between the last two lakes has the same strike and a dip of 85 deg. north.

To the north of Kiahkusagainda lake the schistosity in the Keewatin more nearly approaches a north and south direction. At 3 M. 54 chains on the townline, grey sericite schist on edge has a strike N. 35 deg. to 40 deg. E., close to the contact with greywacke-conglomerate of the Temiskaming series. Twenty chains north of a point ten chains east of this the schistosity is north and south along a ridge of amygdaloidal basalt. In the area between this and the District line grey schist on edge outcrops at intervals, with a strike to the north or north-northeast. Considerable of the cleavability of these schists is due to the development of micaceous minerals during their alteration.

Greenstones outcrop at intervals along the creek flowing out of Moose lake. These are amygdaloidal on the east side of Wellington lake. About one-third of the way down this stream to its junction with the Grassy dolomitic rock occurs, and just below a small lake expansion in the stream banding in a north and south direction was noticed in the schist. About one-third of the way or one mile from the mouth it flows over rock, which appeared to be a quartz porphyry much jointed and broken. Dolomitic rock again outcrops on the Grassy midway between the creek and the lake expansion at the townline of Zavitz and Hutt. At the west end of the portage out of this lake, on the route to Austen and Kitchimine lakes, the rock is quite silicious.

Amygdaloid, containing calcite in the cavities and with a schistosity developed north and south, occurs on the south side of the first lake on the route. Half a mile south of the second portage, and near the townline, assessment work for some mining claims has been performed on some small quartz leads and showings of pyrite in an altered silicious rock. The rocks north-west from these lakes to the Redstone river consist of greenstone, and fine-grained silicious rocks, probably

altered quartz porphyries. Small patches of breccia occur east of the bend of the Redstone, in the north-western part of Zavitz township.

Some of the greenstone on the north-west side of Mushkasenda lake is much fresher than the rest, and resembles a much weathered gabbro rather than the typical Keewatin. Its extent and altered character, with schistosity developed in an E.-N.-E. direction, lead to its inclusion in the Keewatin. Somewhat similar masses of limited extent along the creek to the north cannot be classified with assurance without a microscopic examination in thin section. Considerable masses of serpentine occur in association with the greenstone at various places in this part of the area, as, on the east shore of Marceau lake, in the north-east of Bartlett township, and forming the large hill in the centre of McArthur township. Iron formation occurs in English township, extending half a mile south from the middle of the third mile on the north boundary.

Temiskaming Series.

Relatively, the rocks of this series form a very small portion of the present surface. In addition to the principal area in Midlothian township, there are isolated remnants or islands in the north-eastern part of Bartlett and in McArthur township. Other small areas probably occur, but are apt to escape notice, and are not easy to distinguish from brecciated members of the Keewatin.

The conglomerates of the series are readily distinguished in the field, as weathering develops differences of colour between the different pebbles even where no inequality of surface may be present. The greywackes, composed of fragments of a variety of silicates, usually small in size and ranging down to the finest products of weathering, are often hard to distinguish from fine-grained eruptive rocks. The presence of small fragments of quartz always dark in colour is often a distinguishing characteristic of the finer-grained greywackes. Differences in attitude and the absence of reddish felspars readily separate them from the greywackes formed after the intrusion of the granite. Slaty members of the series are distinguished only by their attitude or by their association with other beds.

A rock on the south shore of Mitre lake, which is banded like a fine-grained gneiss and dips 50 deg. to the northeast, contains an abundance of rhombic prisms of arsenopyrite.

Sedimentary beds of this series, dipping at angles of from 55 deg. to 85 deg., outcrop in the vicinity of Kiahkusagainda lake for a width of over two miles. This would indicate a thickness of at least 7,000 feet. It is quite possible that this thickness should be formed along the shores of a Keewatin continent, from the products of disintegration of the rocks of that period.

Acid Intrusives.

In the Montreal River basin Mr. McPherson mentions a fairly coarse hornblende granite of reddish colour as occurring along the trial line, between the foot of Obushkong lake and the West branch of the Montreal river. This rock, which merges towards syenite, is described by Collins in his report as follows: "The hornblende granite is a medium-grained, fresh-looking rock of speckled appearance, owing to the black hornblende crystals which lie scattered through the main mass of light grey feldspar and quartz. It is of uniform colour, local variations of colour and texture being insignificant."

A dike of grey granite porphyry, 15 feet in width, with which galena is associated, cuts the Keewatin in a direction 10 degrees east of north on the West branch of the Whitefish river, at the eastern corner of Hincks and Montrose townships.

The granite area which crosses the District line in Geikie township was examined at its contact with the Keewatin, on the portage north from Kitchimine lake. Eight chains over the crest of the greenstone hill on this portage, the rock is streaked with granitic material, and lower down on the northern slope granite intrudes the greenstone. To the north of a small swamp at the foot of the declivity the granite becomes continuous. This rock, as outcropping at intervals for five miles along the District line, is described by Burwash, as a coarse-grained, reddish, hornblende granite. On the west side of the stream, here 12 feet wide and probably the West branch of the Night Hawk river, at one mile and three-quarters on the townline, the greenstone has the appearance of being near the contact. Granite outcrops in Zavitz south of the westerly of the two lakes on the townline, but whether this is an isolated outcrop or a part of the surface of the same granite mass could not be determined, on account of the heavy covering of glacial drift. On the west townline of Geikie, the southern boundary of this granite intrusion forms the top of a hill at the end of the first mile. The greenstone near the contact is altered to a hornblende schist, containing narrow bands of granitic material. The granite has narrowed here to one and a half miles or less, the north boundary being at the Redstone river. What is thought to be the point of this tongue was seen two miles west in Bartlett township, at the narrows between the first two of a chain of lakes. It consists of a centre of granite with a southern margin of brick-red porphyry cutting Keewatin rocks of variable character, in which are dikes of reddish felsite. The intrusion is here a quarter of a mile wide, and does not appear on the west side of these lakes. A dike of later diabase either intrudes the porphyry or has it for its northern wall. The schistosity is developed in the Keewatin in a north-easterly direction, and in places nearly easterly. The felsite dikes cut across to north-north-east.

A dike of coarsely granular rock composed chiefly of felspar and containing pyrite, cuts across the English-Zavitz townline in the third quarter of the first mile. At 15 chains from its south boundary it is fine-grained, dark in colour, and contains red felspar.

Another area of acid intrusion occupies portions of the townships of Bartlett, Musgrove, Fripp and McArthur. It lies about one mile west of the Mountjoy creek, and in all probability is continuous with the granite area along the Grassy and Mattagami rivers. Its eastern boundary is characterized by differences due to basic segregation in the magma itself, rather than by any development of gneissic structure. Some portions of the intrusive are so basic as to resemble a gabbro, and to be distinguished with difficulty from later diabases on the one side, and from contact phases of the Keewatin greenstone on the other. Without a microscopic examination of thin sections of these rocks, the geological boundaries must here be considered as only approximate. The edge of the granite was located east of the lake in the north-west corner of Bartlett, as between Keewatin schist half a mile from the inlet and a granite outcrop ten chains nearer the lake, and also in the last ten chains of the first mile on the line between McArthur and Fripp, between an outcrop of syenite at 70 chains and one of hornblende rock at the mile post. The last 44 chains of the sixth mile on the north townline of Bartlett, are undoubtedly occupied by granite. The outcrops in the last 12 chains of the fifth mile were classed as gabbro in traversing the line, and whether they are of later age or simply basic phases of the same intrusion was not determined.

The hill 80 to 100 feet high in the middle of the fifth mile was described as of fine-grained diabase, greenish in colour, and is probably a basic intrusion of later age than the granite. The lake basins in the south-east part of Fripp are occupied by Keewatin greenstone, some of which near the edge of the granite resembles a hornblende gneiss or schist and is very much jointed. North from the lake lying one and a quarter miles west of the township corner, the granite outcrops on both sides of the creek; and a hill of hornblende schist or basic gneiss situated 24 chains west of the McArthur-Fripp line in the last quarter of the fourth mile, is likely close to the contact.

The most typical portions of this intrusion consist of grey hornblende granite. Plagioclase felspar, somewhat waxy in appearance, and dark green hornblende form the chief constituents in the syenite phase of the eruptive, and these together with bluish coloured quartz in the granite. This blue colour in the quartz is very distinct in fresh fractures and forms a means of identifying the more basic phases as parts of the same magma. Biotite occurs in minor quantity in some of the samples. For three miles south of the township corner the granite keeps the same general character; but in the second mile west, it presents considerable variety. Muscovite gneiss forms the west shore of the lake, and both grey and red granite occur at 70 chains in this mile. The 100-foot hill in the fifth mile on the McArthur-Fripp townline is composed of porphyritic red granite with scattered crystals of orthoclase an inch across, and smaller crystals of quartz in greater numbers. At the beginning of the sixth mile this contains a dike of more basic granite, containing the blue quartz typical of the granite farther south.

Cobalt Series.

The distribution of these rocks has already been sufficiently discussed. The basal member of the series is a conglomerate not readily seen in the region covered in this report. It shows at the base of the ridge on the east side of the creek flowing out of Elizabeth lake, where it contains coarse pebbles of granite, together with others of basic rocks cemented by greywacke, which here forms the overlying strata. The ridges in the vicinity of Rankin and Duncan lakes are described by McPherson as being of Huronian rocks varying from slate upwards into hard, reddish arkose and quartzite, medium in grain and with little evidence of stratification. The strike is mentioned as being variable, but usually 15 degrees to 20 degrees west of north. This is the succession of strata already mentioned as forming Sinclair mountain. The reddish strata mentioned is more properly described as greywacke with some layers of quartzite. No arkose was seen except on the large island near the middle of Duncan lake. What is mentioned by Parsons as a crushed granite forming a high rocky bluff on the east shore of Little Hawk lake, is probably an arkose. The upper member of the series is a conglomerate which forms an inconsiderable portion of the surface as compared with the greywacke member. It is found on the slopes of the ridges and rarely on hills. The quartzitic portion of the greywacke being the more resistant usually forms the crest of the ridges. For a fuller description of this series reference is made to the reports on the Gowganda district previously mentioned.

Basic Intrusives.

For a discussion of the quartz diabase of the Montreal River basin, reference is made to the reports of Collins and of Burrows. Basic dikes cutting the rocks of the Cobalt series in the vicinity of the Height of Land are rare, while eight

under 100 feet wide and fresh looking, were found cutting the Temiskaming and Keewatin rocks about Kiahkusagainda lake. From this it would appear that small dikes do not readily penetrate the Cobalt series of sediments. In the territory between this and the Mountjoy creek only a half dozen dikes were seen, though it is many times the other area. The difference may be in part due to the greater extent of drift covering.

More extensive outcrops of diabase occur in two localities along the Mountjoy river in Bartlett township. The first of these lies midway between the outlet of Mushkasenda lake and the portage to the Bartlett lakes. Within half a mile of the portage, coarse gabbro cutting through quartzitic Keewatin rocks forms a hill 100 feet high on the east bank of the stream. A quarter mile south where the river makes a sharp bend to the west, similar rock forms the point on that bank, and at a distance of half a mile an outcrop occurs on the east shore of an expansion of the river. The first two outcrops are evidently connected, but the country is too flat to see the relation of the third to the others. The other locality is near the north boundary where a diabase hill forms the west bank of the river 16 to 20 chains south of the fourth mile post, and another outcrops through the sand a quarter of a mile east. An outcrop at the creek ten chains west of the post is a part of the first ridge, and the rock forming the hill at 36 chains was classed with this in the field.

Pleistocene.

The rock surface over much the greater part of the area is covered with glacial sand and gravel, in which no stratified arrangement was seen. This material often forms plains such as the one extending for eight or nine miles north from the head of Duncan lake. Another area, very flat in character, forms the upper part of the Grassy River basin. Sand ridges surrounding lakes and ponds of the pot-hole type separate this valley from that of the Redstone. In the central part of Bartlett some of the ridges are probably eskers, and the lakes here mostly form a chain extending north-north-west. The sand plain in the southern part of the township, which crosses the boundary in the second mile, is probably continuous with the much larger one lying south of Mushkasenda lake. In general, there is a parallel arrangement, approximately north and south, in these deposits which conforms with the direction of motion of the ice as shown by glacial striae.

Glacial boulders are scattered over the surface almost everywhere. They are usually of rock which has been carried a comparatively short distance. The nearness of a granite area, such as that in Geikie township, is readily told when approaching it from the south by the number of granite boulders in the drift. Some of the boulders in the west part of McArthur township are of immense size; among these are huge masses of the peculiar dike rock in the granite ridge near the fifth mile post on the west boundary, which have been carried a distance of one to two miles.

Structural Features.

The arrangement of the Huronian in nearly parallel ridges with steep western faces and gradual eastern slopes, suggests faulting along north and south lines, and sinking of the eastern side of the blocks. Lines of faulting are determined with difficulty in the Archean; but the parallel courses of the streams, particularly of Mushkasenda lake and creek, the Kapiskong section of the Grassy, and Kenogamissee lake is evidence of similar faults in the older complex. It is interesting

to note that diabase outcrops along the former of these three, in much the same way as it does along Duncan lake in the Montreal river basin. Collins suggests a large anticlinal structure, whose arch lies a little west of Duncan lake, broken by lateral or vertical displacement as an explanation of the position of the Huronian strata. Their nearly horizontal position in the central part of Raymond township may be suggestive of the crest of an anticline, but it is difficult to see why the beds on the western limb should be entirely removed. Nothing remains to suggest a succession of blocks whose western side is let down, unless the preservation of a small area of Huronian on the eastern side of the Kapiskong fault, to the north of Sinclair lake be so considered. The absence of Huronian sediments in most of the Mattagami basin, coupled with their attitude on the other side of the Height of Land, would seem to point to this having been the margin of the sea or of a large glacial lake in which they were laid down.

Minor east and west faults are suggested by the east and west portions of the Montreal river and other streams. One of these faults forms the peculiar turn in Dunedin lake in the centre of Midlothian, and is continued to the east across the line of Elizabeth lake, where it is bordered on the south by a greywacke hill with the strata dipping slightly to the south. As along other fault lines in this district, the part between the lakes is largely occupied by swamp. The direction corresponds with the strike,—which is 10 degrees north of east,—of the Keewatin schist on the north side of this portion of Dunedin lake, and that of the Huronian beds at the east end of this portion, which have the exceptionally high dip of 50 degrees to the north.

ECONOMIC GEOLOGY.

Precious Metals.

The deposits of native silver in veins in the diabase of the Gowganda district have been the subject of several reports of a geological or economic character, and so, will simply be mentioned here.

Mention has been made in this report of small quartz veins occuring in the Keewatin. Considerable prospecting has been done on such veins in grey sericite schist in the vicinity of the District line, a few miles south of Moose lake. In the small part of the area examined, no large bodies of quartz were seen. Similar veins varying in width up to two feet have been located in rock of a less schistose nature, between the portage route and the south line of Zavitz in the third mile, and prospected by stripping and the sinking of test pits. Mining claims were staked at an early date in the vicinity of Kitchimine lake, but these were not visited and interest in them seems to have subsided.

The Nelson claim at Telluride lake was staked on quartz veins, aggregating 16 to 20 feet in width, banded with schist. The finding of telluride of silver and gold in this lead precipitated a rush in the middle of last winter, which could only result in the staking of much barren rock and sand plain. The necessary assessment work has been performed on many of these claims, but with what result is not known. A ten-foot vein of quartz was located on the west side of Mushkasenda lake, but it does not appear to be mineralized. Quite recently, considerable development work has been done on the Nelson discovery, but the writer can only speak if its condition several months past.

The prospecting of the past season in the townships of McArthur and Bartlett has resulted in several discoveries of gold. The most promising are those of Chouinard and Irwin at Clear lake, in the south-east corner of McArthur township. The gold is associated with dikes of coarse quartz porphyry,— which are likely offshoots from a granite mass,—in the Keewatin country rock. What is called locally a dome of quartz has been exposed on Chouinard's claim; as seen after a deep fall of snow this appeared to have a maximum width of about 60 feet, and to be 150 or more feet in length. But whether these dimensions represent fairly the size of the body, or the surface of a flat mass of quartz could not be determined. Gold could be seen in stringers of quartz cutting across the porphyry dikes, but nothing is known of the value of the large mass of quartz. If this carries payable values the property should compare favorably with those of Porcupine. It was understood to be under option of purchase to responsible parties, and will, no doubt, be tested as to values. Other discoveries have been made two miles west of these in Bartlett township.

Iron Ore.

The Cropsey claims have been located on iron formation in the township of English. These are situated on the north boundary in the middle of the third mile, and the showings extend for half a mile south in the township. The formation consists of banded silica together with a little jasper, and iron ore occuring both as magnetite and as hematite, in bands mostly a fraction of an inch in width. Green rock material with a spotted appearance on a weathered surface forms a considerable part of the formation, which has here a width of 50 feet. Consider-

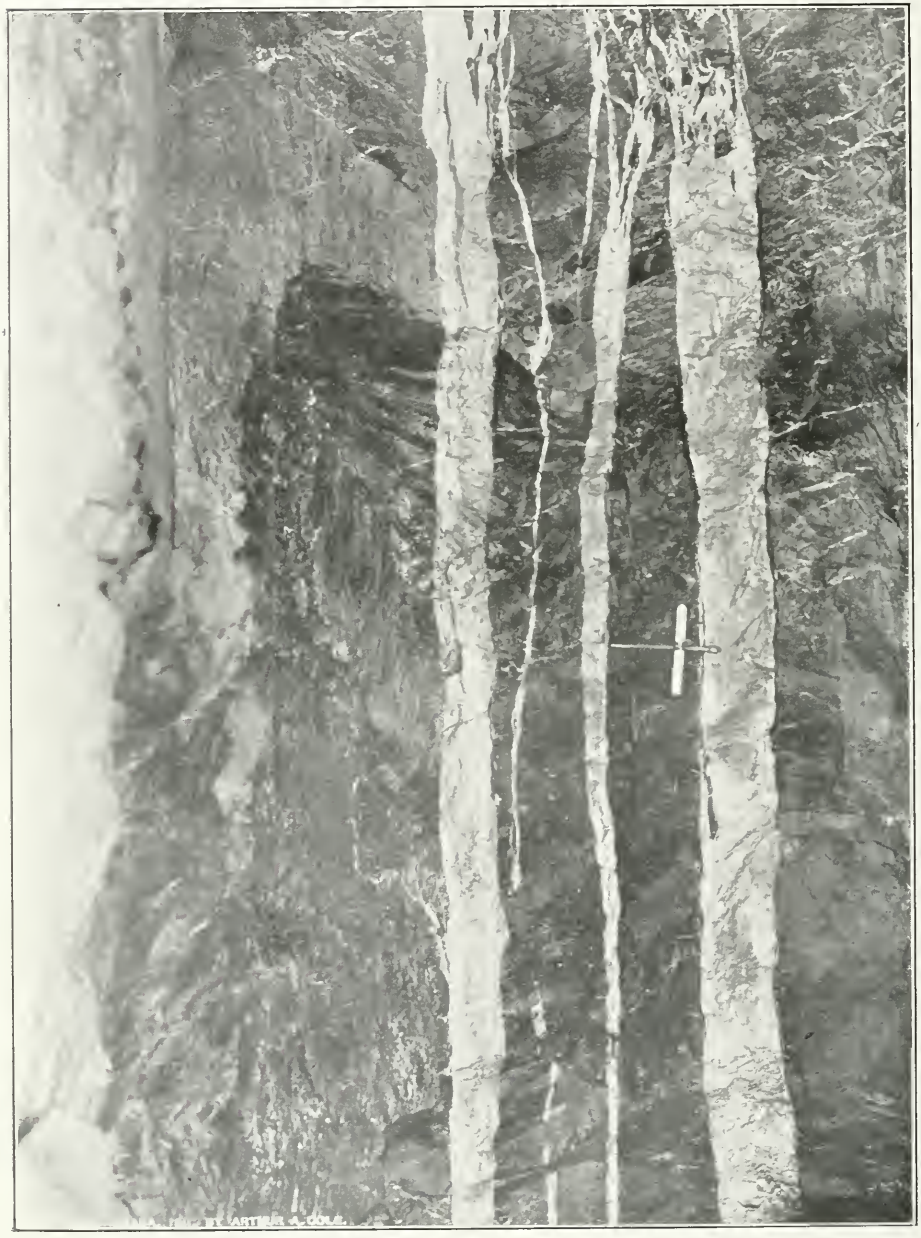
able pyrite occurs banded with silica on the east side, and as large cubes scattered through the rock. In an outcrop 16 chains south of the other, the strike has altered from the general north and south direction and is nearly north-east. At this point the iron ore and green rock material both occur as pockets in much contorted banded silica, the width being about the same. At a point 12 chains north of the first outcrop the iron ore occurs as a cement, binding brecciated portions of the banded silica, and at 16 chains north there is 100 feet in width of this breccia, composed of iron formation. Similar breccia outcrops 4 chains north of this point and 12 chains from the line where the iron formation is lost in a spruce flat.

Pieces of iron ore of good quality were found by some members of the party in the eastern part of the district, but nothing is known of their source.

Asbestos.

Serpentine formed by the alteration of very basic igneous rocks has been mentioned in several localities in the Keewatin. In some of these places as on the east shore of Marceau lake in Bartlett, and on the east boundary of the same township, the product is a green serpentine rock so soft that it may be written upon. The large hill in the centre of McArthur township is formed of this rock with the serpentine coarsely fibrous. North-east of Mount Sinclair several claims have been staked for asbestos. At four and a quarter miles on the east townline of Montrose, a black, altered, igneous rock occurs at the edge of the greywacke. This rock, which is composed entirely of ferro-magnesian silicates and coal-black in colour, is largely altered to serpentine a few chains west of the line, where a pit has been sunk in prospecting. Differentiations of this rock occupy the rest of this mile, and are altered in part to serpentine in which veinlets of asbestos occur. The time available for examination was very short, and none of the other boundaries were determined. Collins mentions in his report that Mr. George Rahn had found asbestos of very good quality in this locality. These areas of serpentine have received little attention from prospectors, and from the nature of the economic products likely to be found in them require the most careful examination.

MACKLEM
THOMAS
BLACKSTOCK
FRIPP
McARTHUR
SUDBURY
NIPISSING
FASKEN
MUSGROVE
McNEIL
HINCKS
ARGYLE
BEEMER
ENGLISH
ZAVITZ
MOHER
SEMPLE
DISTRICT
MONTROSE
BANNOCKBURN
NURSE
SOTHMAN
HALLIDAY
MIDLOTHIAN
DOON
BURROWS
KEMP
MOND
RAYMOND
RANKIN
VAN HISE
MILNER
PROVINCE ONTARIO, CANADA
SIR JAMES PLINY WHITNEY, PREMIER
T. & N. O. Ry.
MAP
GOWGANDA AND PORCUPINE
ENGINEER W.R. MAHER'S
TRIAL LINE
GEOLOGY
J.G. McMILLAN
LEGEND



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Big Chamber Vein, assays about 6,000 ounces silver per ton, in Huronian conglomerate, Kerr Lake Mine, Cobalt, Ont.

MINING ENGINEER'S REPORT

FOR 1911

Report of Arthur A. Cole, Mining Engineer

Mining in the Districts served by the Temiskaming and Northern Ontario Railway.

The Pre-Cambrian formation in Canada occupies a "V" or shield-shaped area, the sides running down through the provinces of Ontario and Quebec and the centre being occupied by Hudson and James Bay.

At the present time *there is no other country in the world that offers prospectors such good chances of locating valuable mineral deposits as this Canadian Pre-Cambrian.*

Occupying a strategic position, running north and south through the point of this "V" lies the Temiskaming and Northern Ontario Railway, Ontario's Government Road.

It was during, and directly due, to the construction of this railway that the wonderful Cobalt camp was discovered: just as a few years previously the Canadian Pacific Railway opened up near Sudbury the greatest desposits of nickel ore the world has ever known. Projected originally as a colonization road for the opening up of the great Northern Ontario Agricultural Clay Belt, it has revealed a mineral district of world-wide notoriety, so that from the first the revenues of the road have been attributable in large measure, either directly or indirectly, to the mining industry.

While agriculture must take a secondary place to mining as a revenue producer for many years to come, the industries are not at all antagonistic, but the presence of mining in the district has given a stimulus to agriculture that it would have been hard to obtain in any other way.

Mining operations during the past year have been confined to the precious metals, silver and gold, with the accompanying cobalt, nickel and arsenic as by-products of the former.

Although deposits are known to exist as pyrites, gold-bearing arsenopyrite, nickel-bearing pyrrhotite, iron and copper, almost all of these are still lying idle.

Silver.

Silver was discovered in Cobalt in 1903, but it was not till the following year that a shipment was made, and even then only 158 tons of ore were shipped, valued at $136,000. From that time to the present the production has been one of remarkable growth, each year surpassing its immediate predecessor, reaching in 1911 32,000,000 ounces, or a total of 136,064,189 ounces silver since mining operations commencedi n the district.

Canada again takes third place in producing the world's annual supply of silver with a production of 34,000,000 ounces, 2,000,000 coming from British Columbia, the remainder being credited to the Cobalt Mines. Assuming that the world's 1911 production was the same as for 1910, viz., about 222,000,000 ounces, it will be seen that the Colbalt Silver district, including in this term Gowganda and South Lorrain, accounted for 14 per cent. or 1-7 of the grand total.

Mexico, as heretofore, took first place, with a somewhat reduced output on account of disturbed political conditions. The United States ranks second with an output of 57,796,117 ounces, produced as in former years mainly in connection with other metals, chiefly lead, copper and gold.

Since the opening up of the Cobalt Silver District the value of the output has increased year by year. The outstanding feature of the year 1911 was a further extension of concentration and a marked movement in the direction of further treatment of the ore, so that a much larger production of the ore leaving the district is shipped out as refined bullion than formerly. These points are illustrated by the following tables:—

TABLE I.

Silver Production of the Cobalt District.

Year.	Tonnage.	Value.
1904	158 55	$ 136,217 00
1905	2,336 01	1,485,570 00
1906	5,836 59	3,573,908 00
1907	14,851 34	6,155,391 00
1908	25,405 35	9,133,378 00
1909	30,057 58	12,456,301 00
1910	34,710 29	15,477,987 00
1911	25,710 22	16,500,000 00 (Estimated)
	139,065 93	$64,918,752 00

Table II.

Ore Shipments From the Cobalt Silver District for the Calendar Year 1911.

(In Tons of 2,000 Pounds.)

Mine.	Jan.	Feb.	Mar.	Apr.	May.	June	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1. Badger	.....	.....	.....	27.10	.....	.....	.....	.....	.....	.....	.....	.....	27.10
2. Bailey	.....	.....	.....	20.00	.....	.....	.....	.....	.....	.....	.....	.....	20.00
3. Beaver	93.21	182.87	21.87	.....	60.73	31.25	31.50	247.08	30.38	59.38	.....	32.54	790.81
4. Buffalo	121.83	122.77	127.10	91.60	108.45	88.88	130.60	96.01	53.58	122.29	87.73	124.35	1,275.19
5. Casey Cobalt	.....	19.00	.....	16.65	5.19	.....	.....	.....	40.00	.....	176.90	.....	277.74
6. Chambers-Ferland	64.95	32.80	64.15	65.40	63.45	64.40	64.70	64.00	.....	32.00	32.00	75.00	622 85
7. City of Cobalt	30.00	31.90	89.05	66.45	32.80	31.10	.....	.....	.....	.....	.....	.....	281.30
8. Cobalt Townsite	122.33	.....	.....	14.40	35.25	23.50	48.65	70.64	133.07	110.55	23.58	121.54	703.51
9. Cobalt Lake	.....	345.45	189.20	181.50	98.00	265.25	89.96	154.73	214 46	230.20	162.51	180.06	2,111.32
10. Cobalt Central	.....	22.40	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	22.40
11. Coniagas	82.15	168.18	266.54	121.30	181.68	165.77	60.60	291.84	101.98	132.60	149.90	91.35	1,813.89
12. Colonial	.....	.....	.....	21.40	.....	22.75	.....	23.70	.....	24.00	22.25	.....	114.10
13. Crown Reserve	78.67	86.41	77.40	114.15	135.70	57.90	131.44	95.85	78.63	30.60	48.92	41.65	977.32
14. Drummond	.....	.....	.....	.....	.....	.....	.....	138.70	183.83	212.30	90.00	90.00	714.83
*15. Green Meehan	.....	.....	.....	.....	29.00	.....	.....	.....	.....	42.90	.....	31.08	102.98
16. Hargrave	.....	.....	20.55	.....	.....	60.00	.....	.....	.....	.....	.....	21.89	102.44
17. Hudson Bay	30.62	30.55	32.60	61.75	93.60	94.25	123.02	126.11	63.07	62.84	97.32	83.15	898.88
18. Kerr Lake	212.70	150.78	60.05	120.75	90.55	90.05	90.90	149.00	90.74	93.80	111.47	31.79	1,292.58
19. King Edward	.....	20.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20.00
20. LaRose	214.41	209.52	146.65	397.28	305.55	272.78	338.86	492.60	398.57	275.71	252.37	277.24	3,581.54
21. McKinley-Darragh	161.31	271.93	202.30	297.49	274.79	299.34	183.80	319.23	337.68	307.33	258.46	324.98	3,238.64
22. Nipissing	440.82	219.73	186.15	178.51	194.35	370.38	283.95	184.45	206.32	128.78	358.02	200.74	2.952.20
23. North Cobalt	.....	3.00	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.00
24. O'Brien	36.40	62.40	65.41	64.70	39.90	63.50	62.75	63.50	35.26	69.21	32.01	33.40	628.44
†25. Peterson Lake	28.45	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	28.45
26. Provincial	.....	.....	.....	20.00	.....	.....	30.35	.....	25.14	.....	25.05	.....	100.54
27. Right of Way	64.20	30.05	62.55	.....	67.32	94.34	32.95	90.67	89.53	61.25	41.12	32.08	666.06
28. Silver Bar	.....	.....	.....	.....	2.72	.....	.....	.....	.....	.....	.....	.....	2.72
29. Silver Cliff	24.25	.....	25.55	42.50	.....	.....	.....	.....	.....	.....	.....	.....	92.30
30 Temiskaming	31.65	67.43	110.21	32.54	96.02	42.77	90.26	70.26	51.86	101.84	67.78	92.98	855.60
31. Trethewey	48.40	24.45	67.90	25.25	105.47	35.35	56.00	24.45	50.40	79.75	29.88	55.68	602.98
Totals	1,886.35	2,101.62	1,815,23	1,980.72	2,020.52	2,173.56	1,850.29	2,702.82	2,184.50	2,177.33	2,087.26	1,941.50	24,921.71

* Leased by Santa Maria Company.

† Shipped by Little Nipissing Mine.

Table III.

Ore Shipments from the Cobalt District for the Years 1904 to 1911.

(In Tons of 2,000 pounds.)

MINE.	1904	1905	1906	1907	1908	1909	1910	1911	Totals
1. Badger								27.10	27.10
2. Bailey			30.00		88.80	36.85		20.00	175.65
3. Beaver						51.38	140.06	790.81	982.25
4. Buffalo		200.80	992.80	1,241.54	536.90	648.86	1,185.77	1,275.19	6,081.86
5. Casey Cobalt					10.00	8.50	48.40	277.74	344.64
6. Chambers-Ferland					223.89	517.88	885.92	622.85	2,250.54
7. City of Cobalt				50.61	761.04	566.82	329.40	281.30	1,989.17
8. Cobalt Central				77.33	187.99	339.01	285.62	22.40	912.35
9. Cobalt Lake					225.97	95.47	296.80	2,111.32	2,729.56
10. Cobalt Townsite				143.22	177.71	27.35	310.99	703.51	1,362.78
11. Colonial			15.00	40.38			178.60	114.10	348.08
12. Coniagas		30.60	422.02	2,447.37	610.25	806.93	1,261.46	1,813.89	7,392.52
13. Crown Reserve					657.35	3,167.52	2,814.25	977.32	7,616.44
14. Drummond	.50	32.15	274.70	104.13	1,161.38	1,225.47	2,194.41	714.83	5,707.57
15. Foster		83.85	117.00	312.13	191.20	113.90			818.07
16. Green Meehan			37.03	98.39				102.98	238.40
†17. Hargrave		28.45					343.68	102.44	474.57
18. Hudson Bay				194.53	1,094.23	743.64	260.33	898.88	3,146.61
19. Imperial Cobalt				14.61					14.61
20. Kerr Lake		54.95	158.38	319.76	660.24	1,173.42	5,088.78	1,292.58	8,748.08
21. King Edward (Watts)		19.00		31.12	338.19	146.58	134.12	20.00	689.01
22. LaRose	60.05	607.86	854.61	2,815.45	4,843.17	6,757.21	5,131.53	3,581.54	24,651 42
‡23. Lawson		14.61		61.12					75.73
24. McKinley-Darragh	20.00	447.09	80.45	742.42	1,808.39	1,056.49	2,393.39	3,238.64	9,786.87
25. Nancy Helen				30.10	201.32	116.32			347.74
26. Nipissing	57.00	486.02	2,125.08	2,538.26	3,571.96	6,470.52	6,833.81	2,952.20	25,034.85
27. Nova Scotia			43.95	272.21	237.95	224.79			778.90
28. North Cobalt						6.87		3.00	9.87
29. O'Brien		26.32	114.18	1,491.61	3,459.51	1,419.11	608.57	628.44	7,747.74
30. Peterson Lake (Leases)									
" (Little Nipissing)					40.67	39.62	313.76	28.45	422.50
" (Nova Scotia)						121.15			121.15
31. Provincial					75.84		52.05	100.54	228.43
‡32. Princess				3.93					3.93
33. Red Rock				45.71					45.71

34. Right of Way			46.25	129.37	750.04	1,608.99	981.41	666.06	4,182.12
35. Rochester									28.30
36. Silver Bar					.58			2.72	3.30
37. Silver Cliff					160.44	149.06	156.84	92.30	558.64
38. Silver Leaf		9.00		46.36	197.03				252.39
39. Silver Queen		44.63	130.94	478.57	885.70	316.64			1,856.58
40. Temiskaming				204.32	795.20	852.14	1,119.12	855.60	3,826.38
41. Temiskaming Cobalt			20.47	67.98					88.45
42. Trethewey	21.00	218.58	198.48	833.58	1,408.69	1,134.50	536.64	602.98	4,954.45
‡43. University		16.00	155.28	60.23					231.51
44. Victoria					.47				.47
45. Violet		16.00	20.00						36.00
46. Waldman							38.81		38.81
47. Wyandoh							24.15		24.15
Totals	132.23	2,248.35	4,459.16	12,883.44	25,362.10	29,942.99	33,976.97	24,921.71	137,386.26

† The shipment in 1905 was made by the White Silver Mining Company, the former owner of the Hargrave property.

‡ Shipments from Lawson, Princess and University since 1907 were included with LaRose.

TABLE IV.

STATEMENT SHOWING SHIPMENTS FROM ELK LAKE AND GOWGANDA DURING YEARS 1909, 1910 AND 1911.

(In tons of 2,000 lbs.)

MINE	1909	1910	1911	Totals
ELK LAKE				
Hitchcock	....	....	4 00	4 00
Lucky Godfrey	....	17 00	....	17 00
Moose Horn	....	3 00	....	3 00
GOWGANDA				
Bartlett	2 00	....	....	2 00
Bonsall	....	6 78	....	6 78
Boyd Gordon	....	30 00	....	30 00
Burke Remey	....	2 00	....	2 00
Everett	....	8 35	....	8 35
Millerett	....	346 30	136 50	482 80
Miller Lake-O'Brien	....	31 00	116 50	147 50
Powerful	....	....	1 00	1 00
Reeves Dobie	....	61 00	....	61 00
Welsh	....	1 25	....	1 25
Totals	2 00	506 68	258 00	766 68

TABLE V.

STATEMENT SHOWING ORE SHIPMENTS FROM SOUTH LORRAIN.

(In tons of 2,000 lbs.)

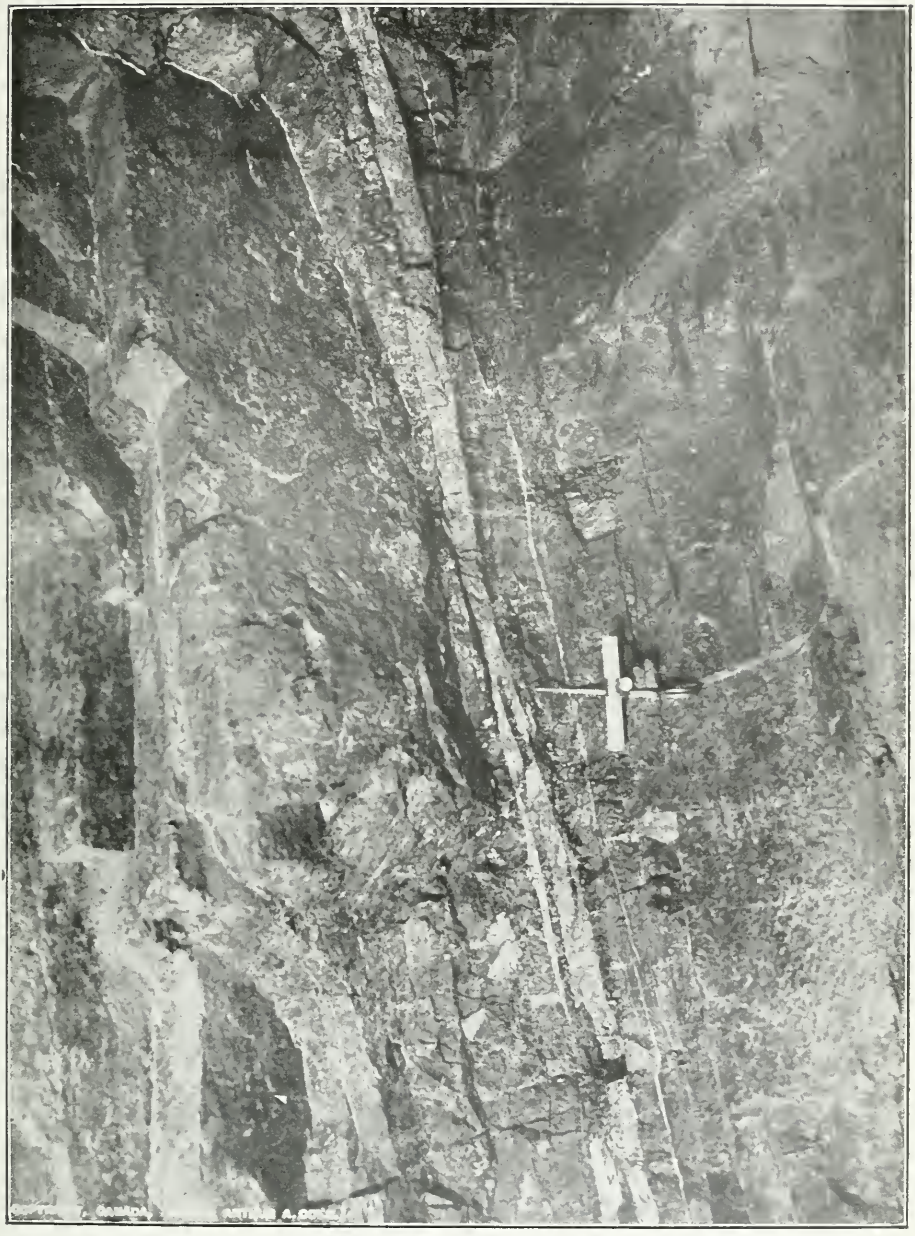
Mine.	1908	1909	1910	1911	Totals.
Wettlaufer	.....	111.50	226.64	496.00	834.14
Keeley	43.25	1.09	.....	21.26	65.60
Bellellen	.....	.....	.....	13.25	13.25
Totals	43.25	112.59	226.64	530.51	912.99

TABLE VI.

STATEMENT SHOWING SHIPMENTS FROM COBALT DISTRICT, INCLUDING GOWGANDA, ELK LAKE AND SOUTH LORRAIN.

(In tons of 2,000 lbs.)

Years	Cobalt	Gowganda	Elk Lake	S. Lorrain	Totals
1904	158.55	.....	.....	.....	158.55
1905	2,336.01	.....	.....	.....	2,336.01
1906	5,836.59	.....	.....	.....	5,836.59
1907	14,851.34	.....	.....	.....	14,851.34
1908	25,362.10	.....	.....	43.25	25,405.35
1909	29,942.99	2.00	.....	112.59	30,057.58
1910	33,976.97	486.68	20.00	226.64	34,710.29
1911	24,921.71	254.00	4.00	530.51	25,710.22
Totals...	137,386.26	742.68	24.00	912.99	139,065.93



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Calcite Vein in diabase, assays 2,100 ounces silver per ton. 2 feet of wall-rock assays 230 ounces, 150 foot level. Millerett Mine, Gowganda, Ont.

TABLE VII.

STATEMENT SHOWING BULLION SHIPMENTS FROM THE COBALT SILVER DISTRICT.
(During Calendar year 1911.)

Mine.	Silver Bullion Ounces.	Value.
1. Buffalo	97,413	$ 52,008 74
2. Cobalt Townsite	3,537	1,919 13
3. Crown Reserve	375,214	192,125 94
4. Cobalt Lake	5,503	2,290 36
5. Colonial	3,691	1,950 29
6. Cobalt Central	800	368 06
7. Drummond	3,050	1,638 69
8. Green Meehan	391	208 56
9. Hargrave	5,403	2,708 64
10. Hudson Bay	8,519	4,124 64
11. Kerr Lake	14,687	7,793 98
12. Nipissing	2,352,758	1,268,495 53
13. Nova Scotia	530,350	277,769 64
14. Nancy Helen	227	125 81
15. O'Brien	275,506	146,527 51
16. Silver Cliff	2,363	1,209 84
17. Silver Bar	332	176 98
18. Temiskaming	84,409	46,286 91
19. Trethewey	6,638	3,569 32
20. Waldman	241	129 52
21. Wyandoh	668	350 30
22. Miscellaneous	1,220	650 56
Totals	3,772,920	$2,012,428 95
Total for 1910	945,702 94	$ 501,815 33
Total for 1911	3,772,920 00	2,012,428 95
Grand total	4,718,622 94	$2,514,244 28

The tonnage from the Cobalt District reached a maximum in 1909, since then it has shown a marked decline. This is due to the reduction and refining plants, whose products are shipped as concentrates or refined bullion instead of low grade ore. This accounts for the fact also that the average price per ton of the shipments is rising year by year, and the total value of shipments is still rising. We are now on the crest of the production wave, and after continuing thus for a number of years we are likely to commence a gradual descent.

Before the general introduction of milling the proportion of high grade to low grade shipments was about one to two, but this is now reversed. The following table, covering the latter half of the year 1911, demonstrates this point:

STATEMENT OF SILVER ORE SHIPMENTS FROM COBALT DIVIDED AT 500 OUNCES.

1911.	High Grade Cars.	Low Grade Cars.	Total Cars.
July	42	16	58
August	54	33	87
September	49	21	70
October	45	29	74
November	49	22	71
December	44	19	63
	283	140	423

A departure from the usual prospecting by trenching is being made by the Nipissing Mining Company by the installation of a plant for the purpose of clearing the hillsides of drift by hydraulicing. It consists of a turbine pump direct connected to a motor.

The pump is guaranteed to throw 4,800 gallons of water per minute under a head of 415 feet, and with an expenditure of 675 horse power. The pump has been started up and tested, but it will be next summer before it will be put into regular operation. The usual method of trenching in 50 or 100 foot squares sometimes leaves undiscovered some small veins, and where the contour of the ground is favorable and does not contain too many large boulders, the surface soil can be removed by sluicing and any small veins exposed.

It is not the intention to run all the tailings into the lake but only to expose a clear space to start with after which the ground will be sluiced down in benches, and as soon as a certain section has been examined, it will be covered over again with the tailings from the section above.

From Gowganda regular shipments have been made during the year from the Millerett and Miller Lake O'Brien. A few other companies have carried on development work, but otherwise this part of the district has been very quiet.

The decision of the Temiskaming and Northern Ontario Railway Commission to extend a branch line of the Railway into Elk Lake has renewed interest in this section and Gowganda. Claims that had been abandoned have been restaked, and people that were hesitating about performing further work on their claims are now putting them in good standing.

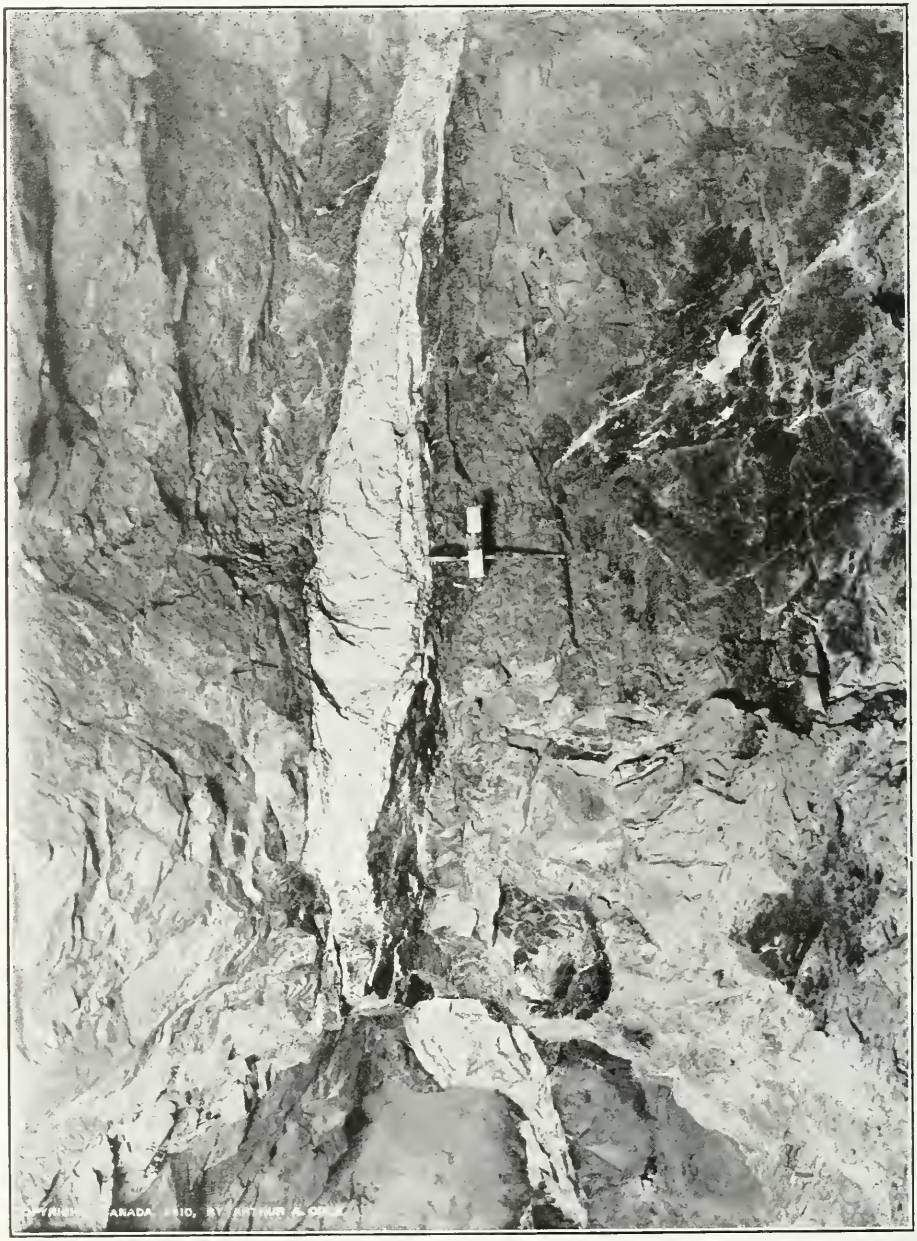
The Silver Market.

Conditions in the east were as usual the chief factors in the silver market. A very steady market ruled for the first ten months of the year, but in November a sharp rise was occasioned by the speculation of Indian and Chinese capitalists.

The highest price recorded for the year was 56¾ cents, on November 23rd, and the lowest 51⅜ cents, on February 9th. The average price was 53.304 cents, or just under 1-5 cent less than the average price for 1910. The following table gives the monthly average prices for the past two years:

Monthly Average Prices of Silver.

Month	1910.	1911.
January	52.375	53.795
February	51.534	52.222
March	51.454	52.745
April	53.221	53.325
May	53.870	53.308
June	53.462	53.043
July	54.150	52.630
August	52.912	52.171
September	53.295	52.440
October	55.490	53.340
November	55.635	55.719
December	54.428	54.905
Average for year	53.486	53.304



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Calcite Vein, assaying 4,070 ounces silver per ton, in Keewatin formation. 400 foot level, Temiskaming Mine, Cobalt, Ont.

The production of Cobalt has reached such a point that a rise of one cent in the price of silver means an increased monthly income of over $26,000.

Dividends

That such a small section of country as Cobalt should produce one seventh of the world's production of silver is enough in itself to entitle the camp to notoriety, but a fact that is still more noteworthy is that out of a total of 30 more or less regular shippers from the whole district, seventeen are dividend payers and an eighteenth is likely to pay its first dividend shortly. Moreover the amount of these dividends is more than fifty per cent. of the gross value. In 1911 it was fifty-four per cent. of the total production for the year.

The following mines paid dividends during the year viz:

Beaver	Cobalt.
Buffalo	"
Coniagas	"
Crown Reserve	"
Hudson Bay	"
Kerr Lake	"
LaRose	"
McKinley-Darragh	"
Nipissing	"
Right of Way	"
Temiskaming	"
Trethewey	"
Wettlaufer	South Lorrain.

Then to the above list should be added the four following private corporations whose profits do not appear as dividends on account of their private nature, viz:

Drummond	Cobalt,
O'Brien	"
Millerett	Gowganda.
Miller-Lake-O'Brien	"

The dividends and bonuses paid since the commencement of operations at Cobalt are approximately as follows:

Dividends Paid by the Mines of the Cobalt District.

1905	$ 30,522
1906	2,120,739
1907	3,031,296
1908	3,634,522
1909	6,995,679
1910	6,900,817
1911	8,958,047
Total	$31,671,622

Sampling.

The ore sampling works of Campbell & Deyell were in continuous operation throughout 1911 and during that time treated 5,653 tons of high grade ore. This represents about 70 per cent. of the capacity of the plant. The plant was designed to sample the high grade silver ores of the Cobalt District and details have been worked out with the greatest of care. Machines are being installed which cut out the objectional feature of floor sampling so that now the plant is practically automatic throughout. The work performed in this plant is equal to the best on the continent and having it located in Cobalt is a decided boon to the camp.

This has been found out by the mining companies that have had their ores sampled before treatment, and as the benefits of this careful sampling are more

appreciated by the other mining companies in the camp, the sampling works are likely to be taxed to their full capacity. At present this sampling is accepted by three Canadian and one American smelting companies.

Concentration.

From small beginnings and a comparatively insignificant position in the early history of Cobalt, *Concentration* has developed till it is at present one of the dominating features of the situation. In fact it is hardly too much to say that half the mines nor shipping would be closed down if they had had to depend on their high grade ore without their mills for their profits.

Fifteen mills operated during the year, milling a total of 381,870 tons. The Hudson Bay mill started operations in March, but the Silver Cliff, King Edward and Cobalt Central mills were closed down most of the year. The King Edward mill has recently been rented by the City of Cobalt Mining Company for the treatment of their own ores.

Mills are also under construction for the Beaver and Nipissing Companies.

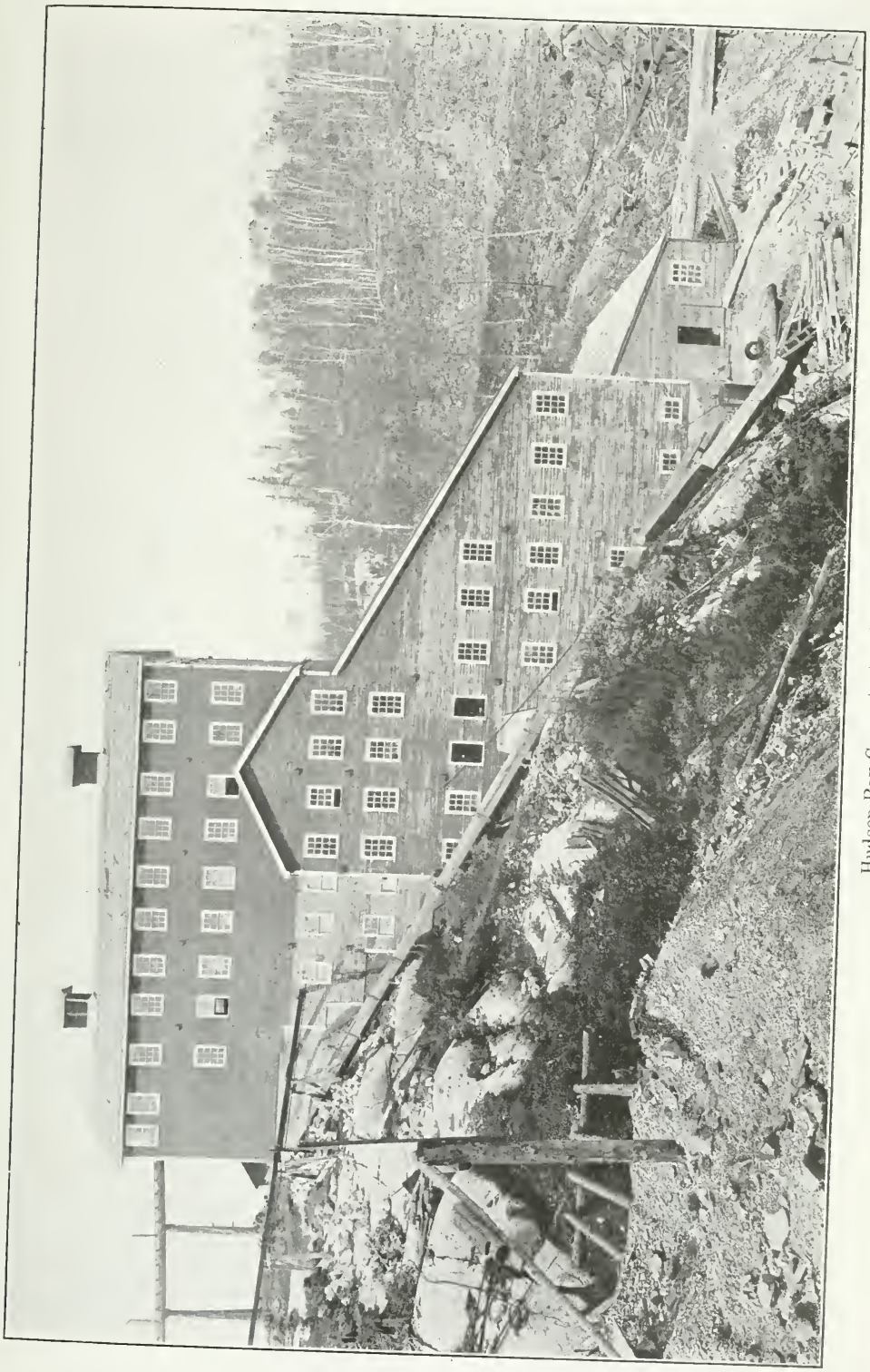
Cyanidation is used in conjunction with regular water concentration in the O'Brien and Buffalo mills, and in the case of the Nova Scotia it is a combination method of cyanidation and amalgamation. The latter combination is also to be adopted in the new Nipissing mill.

A small high grade mill of five tons daily capacity has been installed by the Nipissing Company, which has been treating successfully high grade ores and concentrates for some months. It was while the tests were being carried on for this mill that the interesting discovery was made that mercury sometimes occurs in appreciable percentage in the nuggets of some of these ores. The process of this high grade mill is a combination of amalgamation and cyanide treatment. The amalgamation sponge is melted down in a reverberatory furnace and refined up to 999. The precipitates are melted in a tilting furnace and this bullion is then refined in the reverberatory.

Following are tables of concentration which illustrate the advance made in this part of the industry.

Concentration in Cobalt During 1911.

Mills and Mines.	Tons Milled.	Concentrates Jigs.	Concentrates Tables.	Totals.	Concentration Ratio.
*1 Buffalo	43,930.00	236.00	735.00	971.00	45—1
2 Cobalt Central	1,478.40	3.82	12.37	16.19	91—1
3 Colonial	7,755.00	.....	.....	127.00	61—1
4 Cobalt Lake	3,800.00	39.15	55.15	94.30	40—1
5 Coniagas	53,150.00	318.70	952.40	1,271.10	42—1
6 Hudson Bay	18,294.00	239.00	427.00	666.00	27—1
7 King Edward—					
City of Cobalt	1,047.50	3.00	25.00	28.00	38—1
King Edward	12,019.00	.....	.....	16.50	73—1
8 McKinley-Darragh	46,497.00	644.00	1,884.00	2,528.00	18—1
9 Millerett	5,454.00	8.00	82.00	99.00	61—1
10 Nipissing Reduction	14,766.53	87.82	150.73	238.55	62—1
11 Northern Customs—					
City of Cobalt	5,911.08	.....	.....	233.07	25—1
Cobalt Townsite	12,569.97	.....	388.39	388.39	33—1
Casey Cobalt	362.00	.....	.....	12.00	33—1
LaRose	36,264.49	.....	1,721.10	1,721.10	21—1
Nancy Helen	519.00	.....	4.80	4.80	108—1
12 Temiskaming	34,720.00	177.44	588.23	765.67	45—1
13 Trethewey	30,925.00	107.68	341.12	448.80	69—1
Total	329,462.97	.....	.....	9,620.47	34—1



Hudson Bay Concentrator, Cobalt, Ont.

Nova Scotia—				
Crown Reserve	6,402.00			
Drummond	235.00			
Hargrave	321.00			
Kerr Lake	937.00			
Nova Scotia	880.00			
Peterson Lake	7,224.00			
Right of Way	3,142.00			
Miscellaneous	11.50			
		19,152 tons	Produced	Bullion. 686,406 ozs.
O'Brien		33,256 "	"	273,930 "
		52,408 "	"	960,336 "

Total tons milled by water concentrating mills.....329,462.97
Total tons milled by cyanide mills..... 52,408.00

Total tons milled.....381,870.97

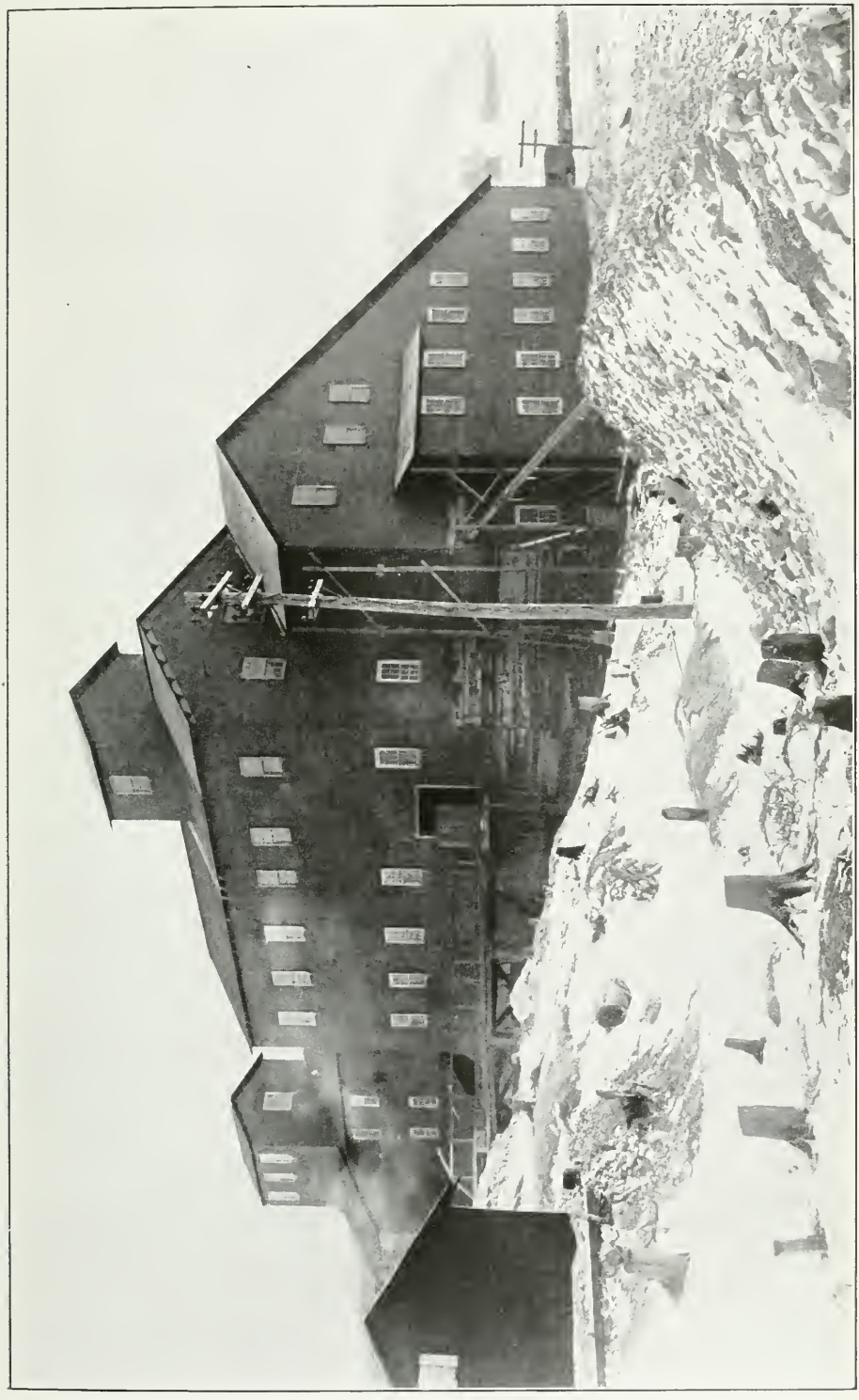
*This mill cyanided 8,804 tons of slimes, producing 4,565 lbs. of bullion.

The concentrates from the Customs Mills are usually much lower in jig product than those from the Company mills, for the reason that the companies shipping mill rock to the Customs Mills usually jig it before they send it to the mills. This is done by the LaRose, Nipissing, Kerr Lake and Crown Reserve.

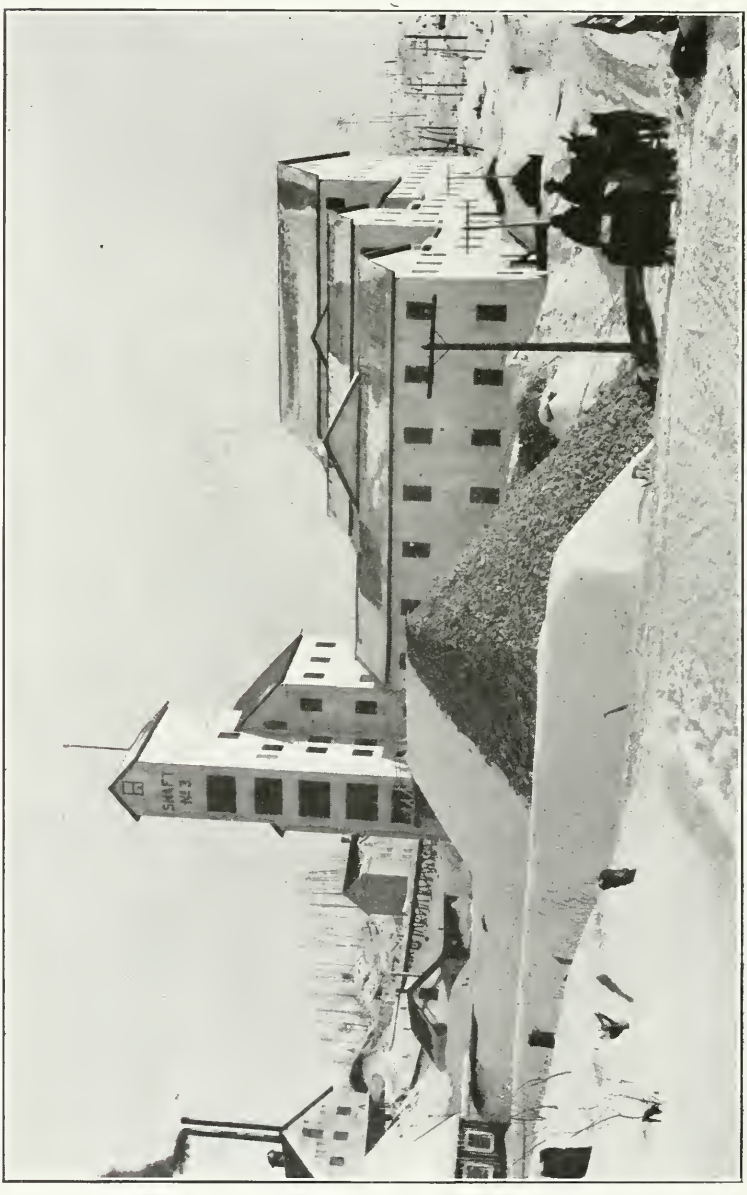
The following is the list of mills in the District showing their daily rated capacity:

Mill	District	Capacity per Day	Remarks
1. Buffalo	Cobalt	150	
2. Cobalt Central	"	100	Closed down.
3. Cobalt Lake	"	70	
4. Colonial	"	30	
5. Coniagas	"	160	
6. Hudson Bay	"	50	
7. King Edward	"	30	Operated by City of Cobalt Mine
8. McKinley-Darragh	"	120	
9. Nipissing Red	"	75	Customs mill.
10. Northern Customs	"	200	"
11. Nova Scotia	"	160	"
12. O'Brien	"	90	
13. Silver Cliff	"	80	Closed down.
14. Temiskaming	"	80	
15. Trethewey	"	100	
16. Millerett	Gowganda	30	
17. Reeve Dobie	"	30	Closed down.
		1,555	
UNDER CONSTRUCTION—			
18. Beaver	Cobalt	60	
19. Nipissing	"	200	
Total capacity per day		1,815 Tons	

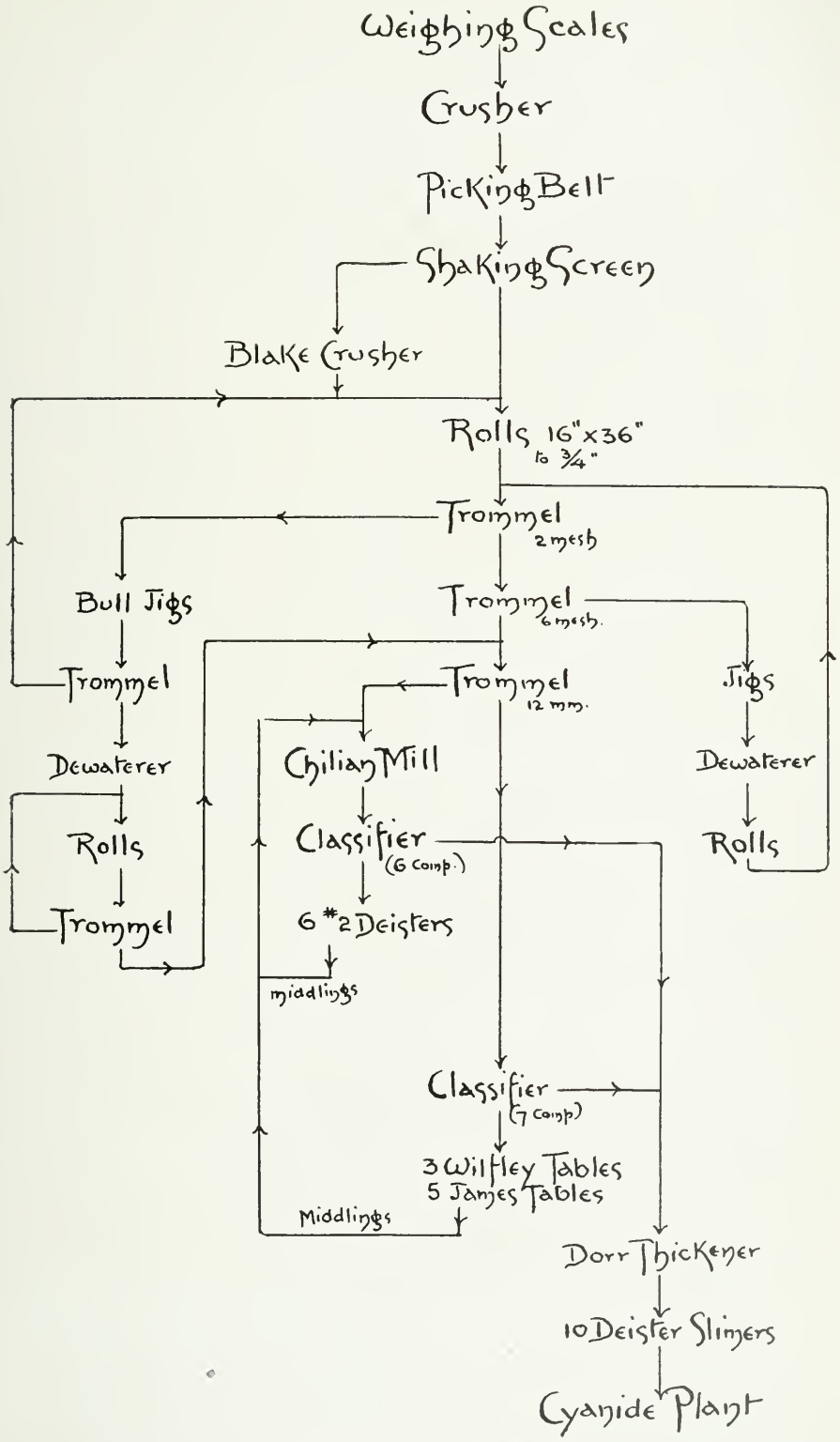
The flow sheets of the new mills erected during the year, and those under construction are given in outline, and those for the older mills are repeated if important changes have been made since their publication in our 1910 report.



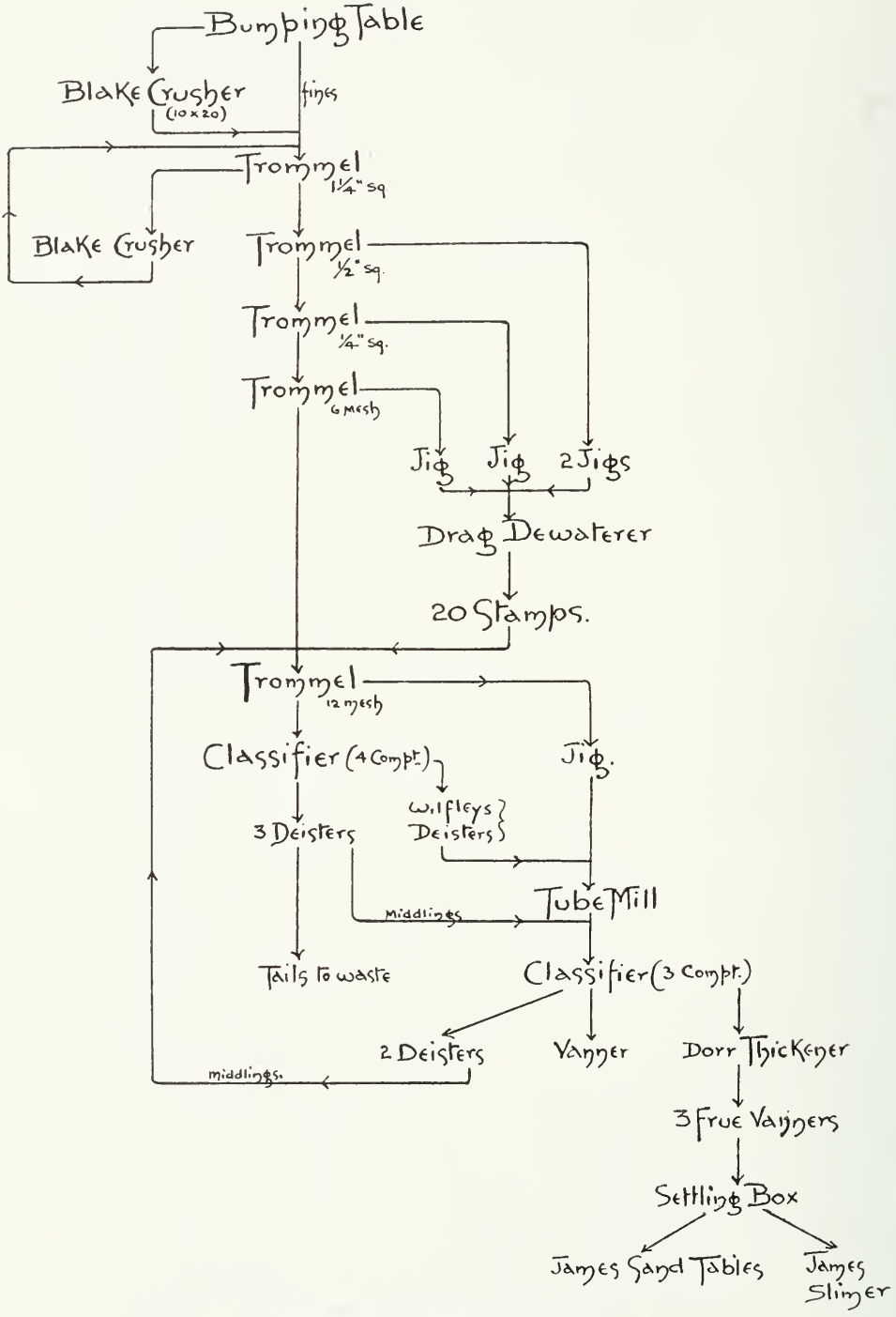
Northern Customs Concentrator, the largest stamp mill in Canada, Cobalt, Ont.



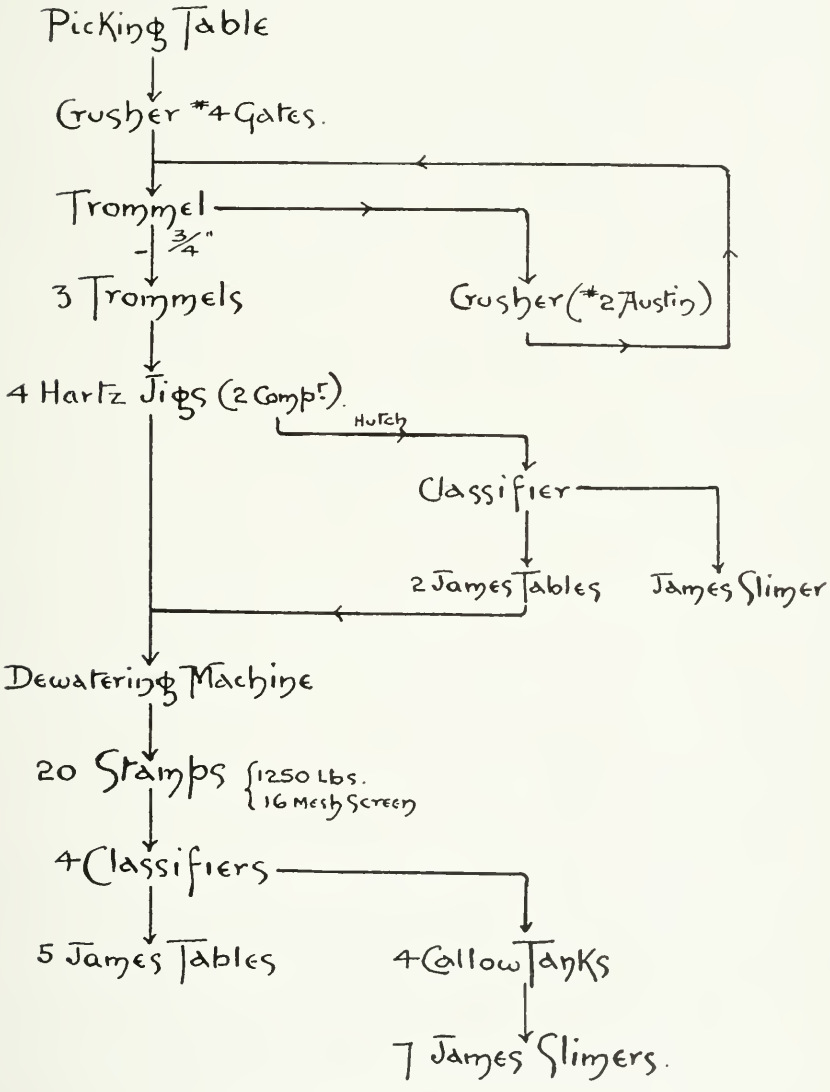
Nova Scotia Mill, Cobalt, Ont.



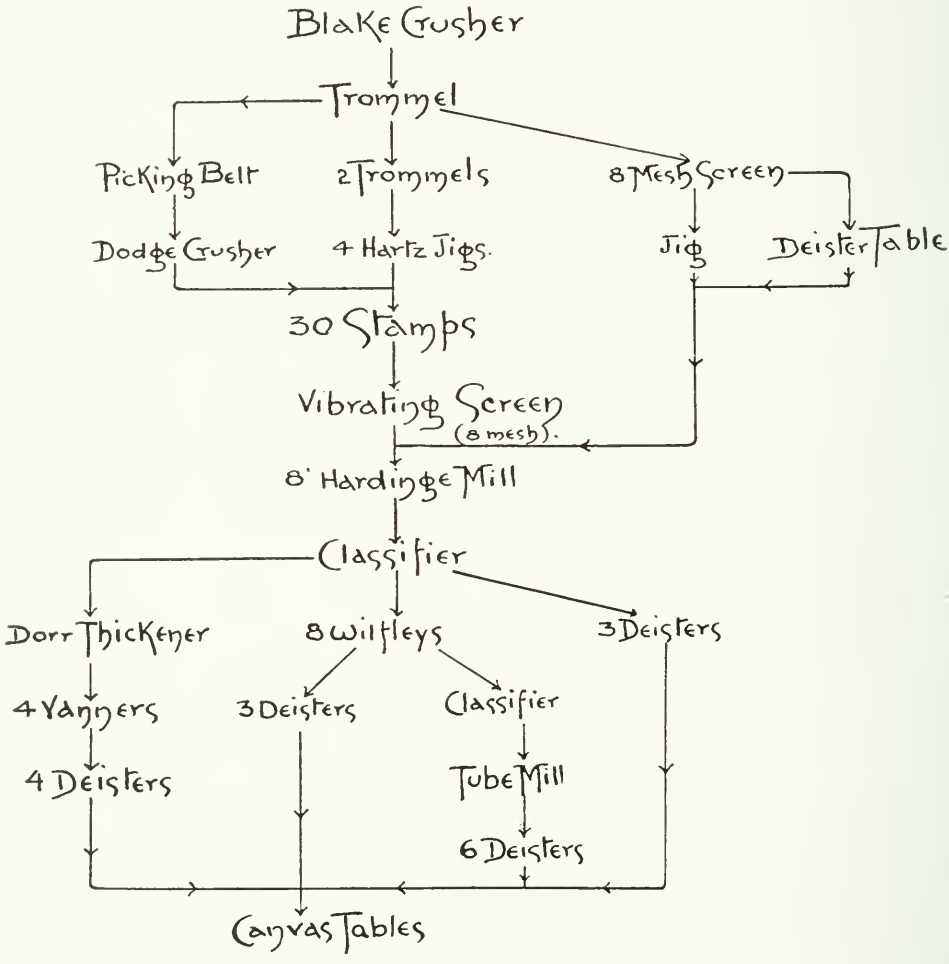
FLOW SHEET, BUFFALO MILL.



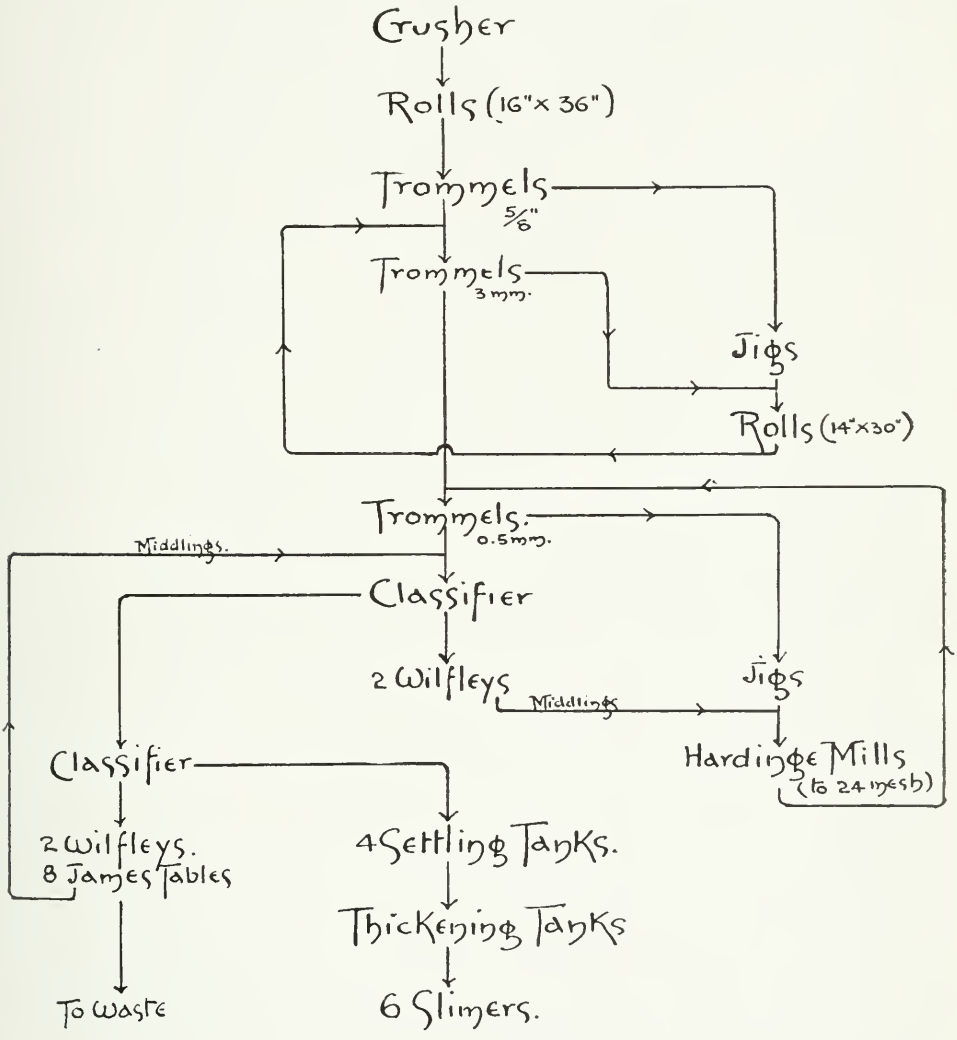
FLOW SHEET, COBALT LAKE MILL.



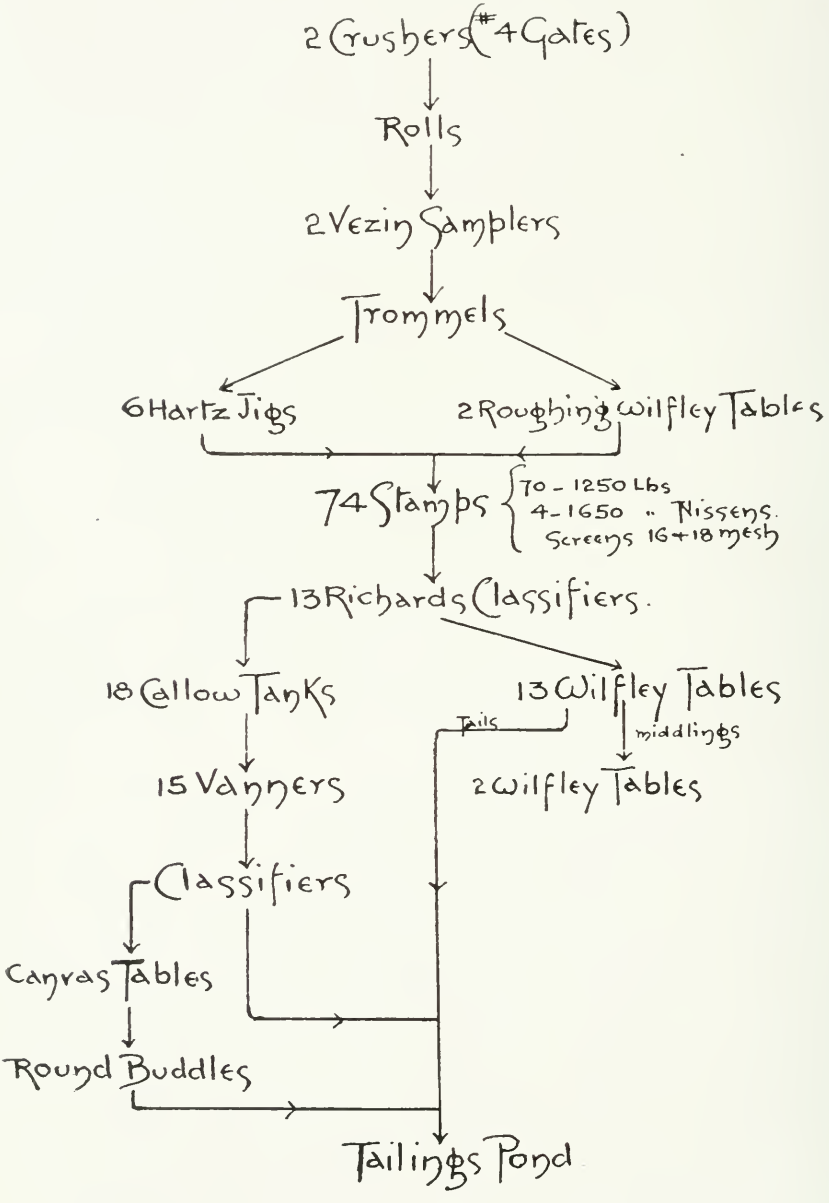
FLOW SHEET, HUDSON BAY MILL.



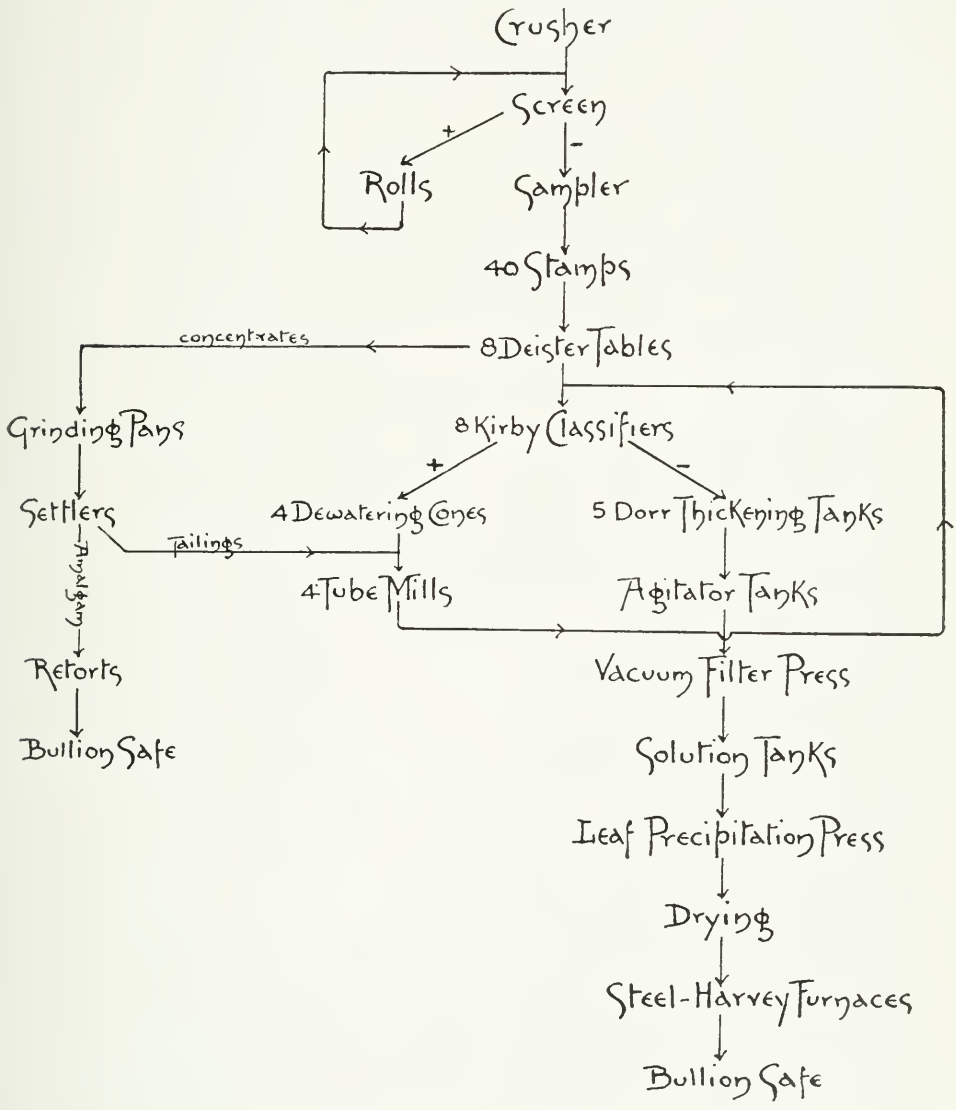
FLOW SHEET, M'KINLEY-DARRAGH MILL.



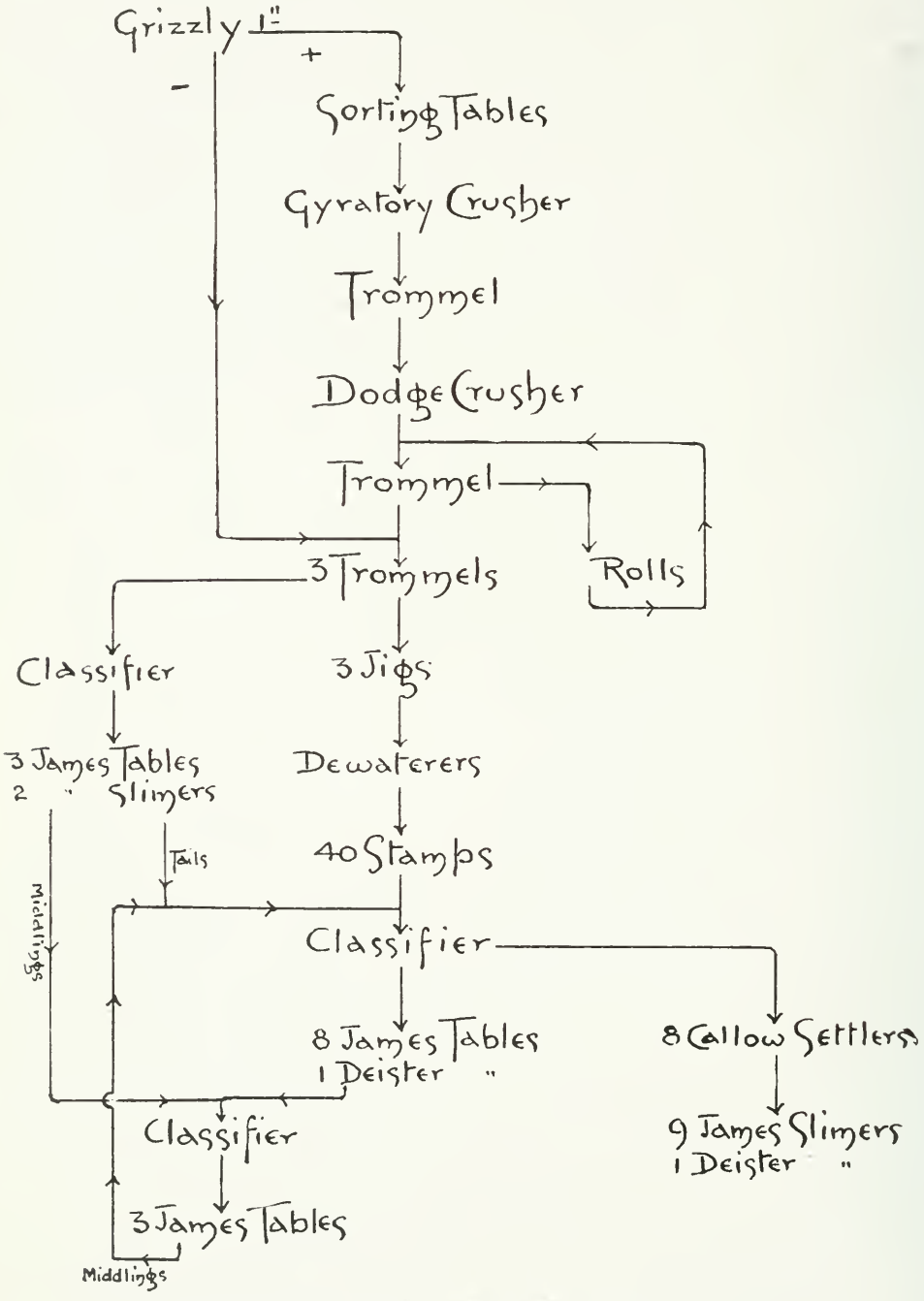
FLOW SHEET, NIPISSING REDUCTION MILL.



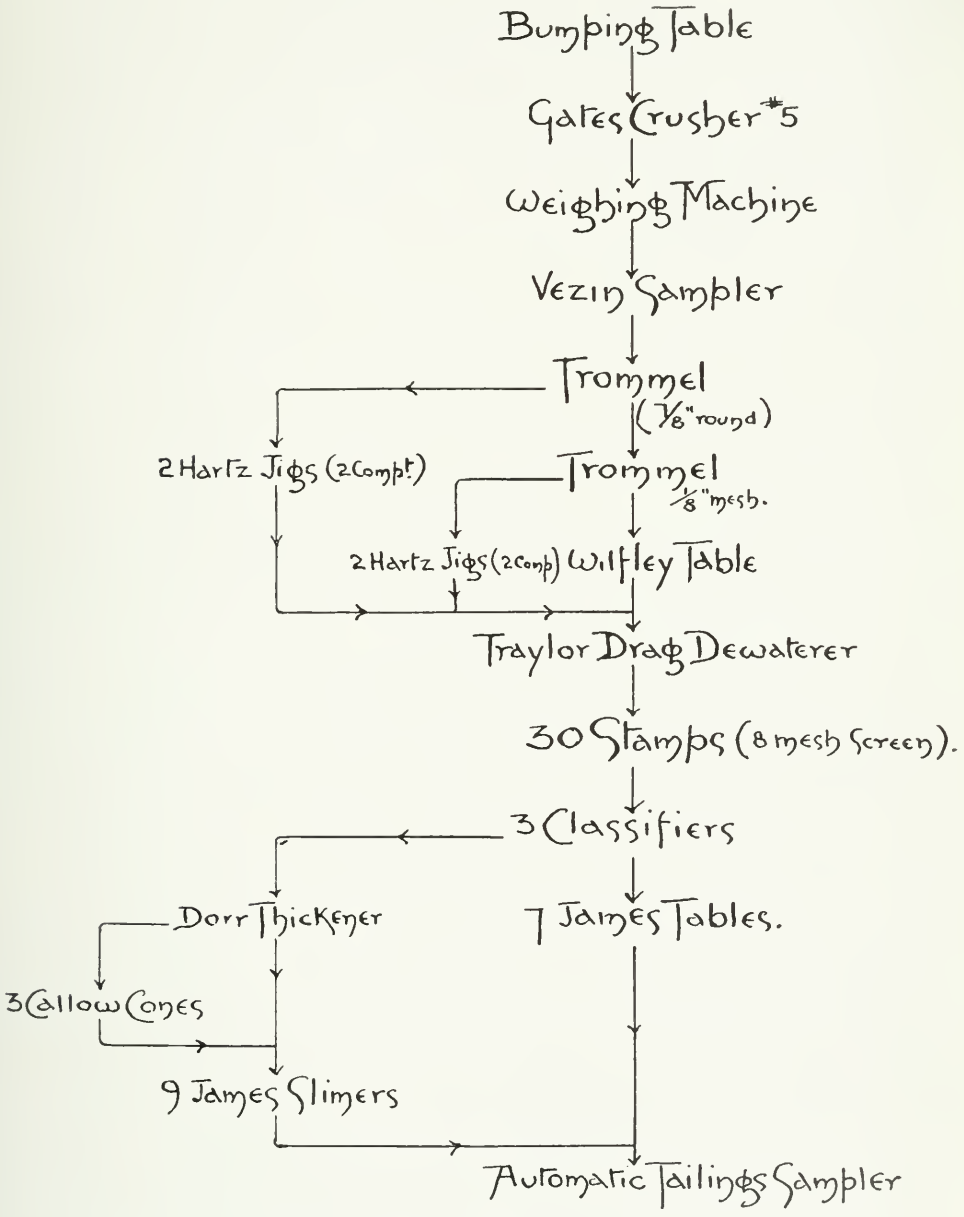
FLOW SHEET, NORTHERN CUSTOMS CONCENTRATOR.



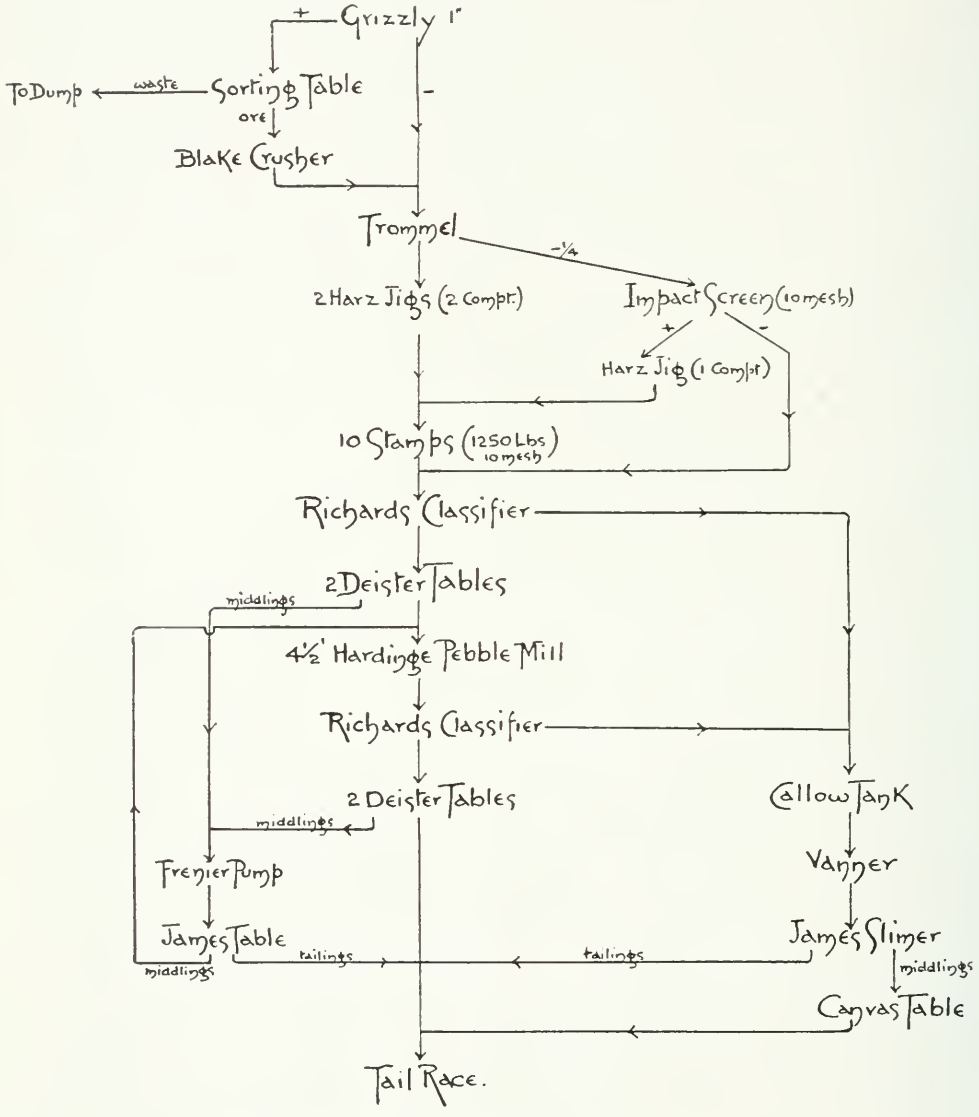
FLOW SHEET, NOVA SCOTIA MILL.



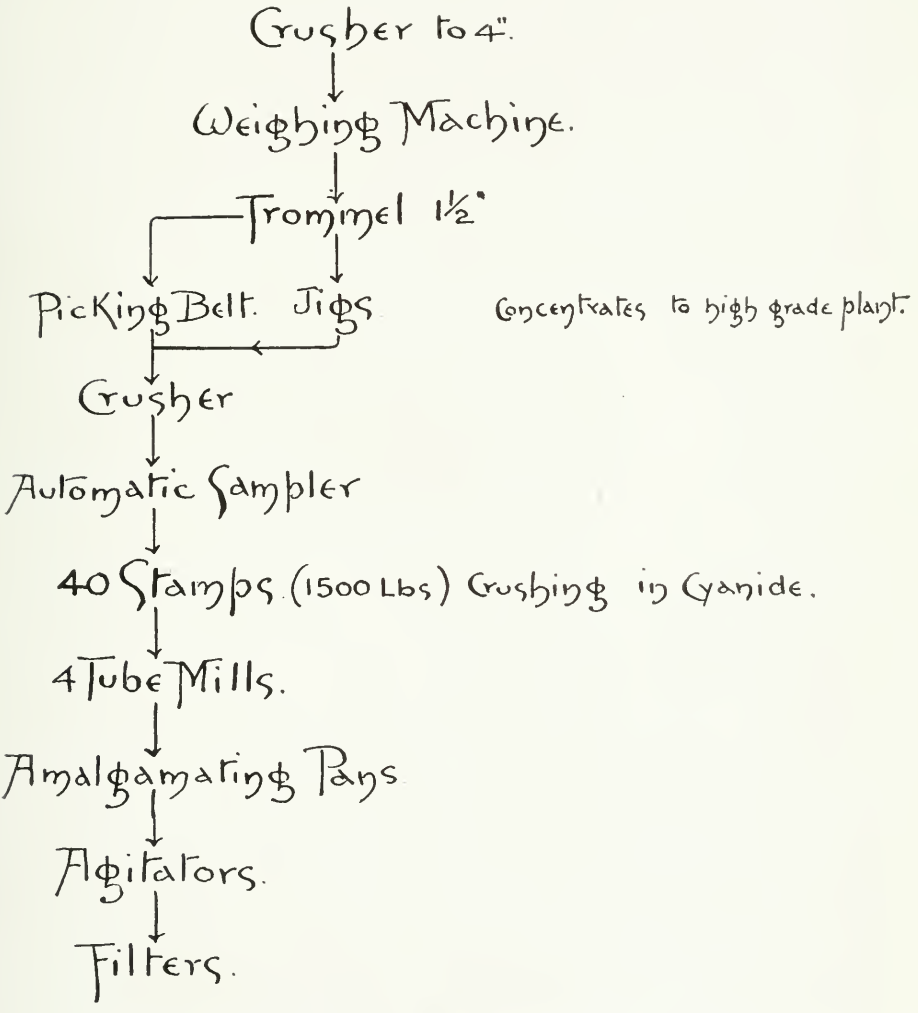
FLOW SHEET, TEMISKAMING MILL.



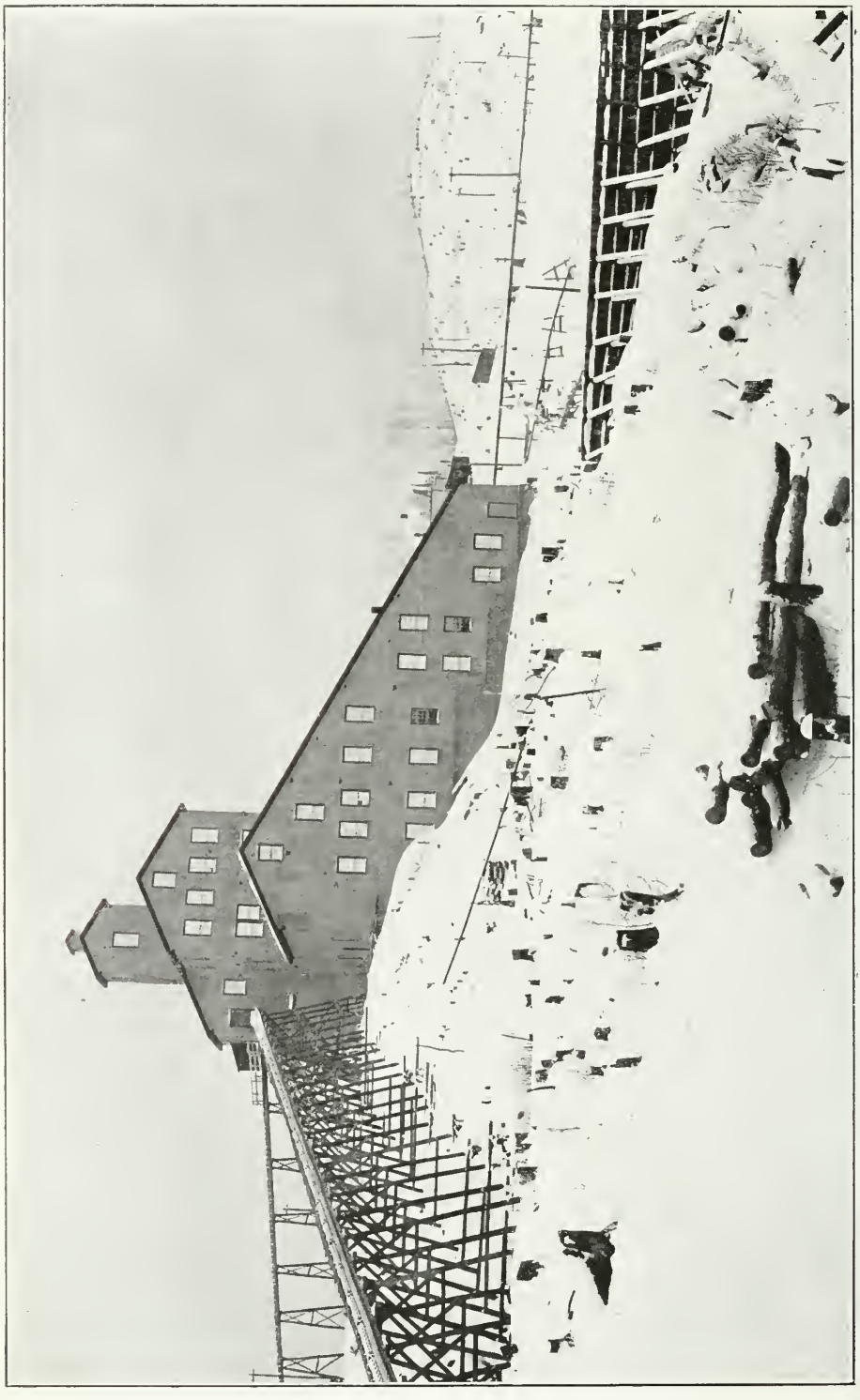
FLOW SHEET, TRETHEWEY MILL.



FLOW SHEET, MILLERETT MILL, GOWGANDA.



FLOW SHEET, NIPISSING MILL (UNDER CONSTRUCTION.)



Trethewey Concentrator, showing Tramway and Tailings Dam, Cobalt, Ont.

Freight Rates on Silver Ores.

The freight rates on silver ore from Cobalt to the smelters in effect on the 1st day of January, 1912, were as follows, being the same as ruled throughout 1911:

From Cobalt to North Bay—
Below $49.00 per ton ..... 10 cents per 100 lbs.
Above $49.00 per ton, billed to Canadian points ..... 14 " " "
Above $49.00 per ton, billed to outside points ..... 16 " " "

Silver Ore, Carloads, Minimum 30,000 lbs.

	Rates in cents per 100 lbs.			
	A	B	C	D
From North Bay to				
Marmora, Ontario	18	20	27	34
Copper Cliff "	10	12	16	21
Orillia "	11	13	17	21
Thorold "	14	16	21	26
Toronto "	12	14	19	24
*Denver, Colorado, U.S.A.	40	46	54	62½

Application of Rates.

Group A.—rates apply when valuation is under $50.00 per net ton.
" B.— " " " " " $50.00 and under $100.00 net ton.
" C.— " " " " " $100.00 and under $500.00 net ton.
" D.— " " " " " $500.00 and over per net ton.

When shipments are made to Eastern United States points a through rate is not quoted, but cars are billed to the frontier, to Buffalo, Black Rock or Suspension Bridge, N.Y. From there new rates and ratings apply.

Silver Ore, Carloads, Minimum 40,000 lbs.

	Rates in cents per 100 lbs.			
	A	B	C	D
From North Bay to				
Buffalo, Black Rock or Suspension Bridge, N.Y., U.S.A ...	12½	15	19½	24½

Application of Rates.

Group divisions A, B, C and D apply on same valuation as in previous table.

Silver Ore, Carloads, Minimum 50,000 lbs.

From Buffalo, Black Rock and Suspension Bridge, N.Y., to—	Rates in cents per 100 lbs.			
	A	B	C	D
Bergen Junction, N.Y.	13	16	22	28
Carnegie, Pa.	10	11½	18	25½
Chrome, N.J.	13	16	22	28
Newark, N.J.	13	16	22	28
New York, N.Y.	13	16	22	28
Perth Amboy, N.J.	13	16	22	28

Application of Rates.

Group A rates apply when valuation is under $100.00 per net ton.
Group B rates apply when valuation is over $100.00 and does not exceed $800.00 per net ton.
Group C rates apply when valuation is over $800.00 and does not exceed $2,000 per net ton.
Group D rates apply when valuation is above $2,000 per net ton.

* The splitting point for values in the application of rates in the case of Denver is one dollar below that given above, and the minimum carload is 40,000 pounds.

Notes.

Shipments are billed at the highest rates (Column D), and charges are collected at destination accordingly. On presentation of paid expense bill and signed assay certificate from the smelter showing the value of the ore to be less than the rating of group D, charges are adjusted in accordance with the valuation to the above rates. The smelter returns to the mine or owner before deducting transportation charges are the values used in determining the freight charges.

The freight charges on ore shipped from Cobalt to Hamburg, Germany, were $13.47 per ton when shipped *via* Montreal during the summer. In winter the ore goes *via* Boston and the rate was then $15.20 per ton.

Smelting.

The smelter situation was not materially different during 1911 from previous year, and there are few alterations in the list of the companies receiving ore from Cobalt.

The percentage of the total tonnage treated by Canadian smelters, as compared with that of foreign smelters, remains about the same, being about one third of the total. On the other hand nothing but high grade ore is treated by the Canadian smelters, so that if the comparison is made on silver contents it will be found that more than fifty per cent. was smelted and refined in Canada.

Geographical Distribution of Cobalt Ore Shipments.

(In Tons of 2,000 lbs.)

Country.	1907		1908		1909		1910		1911	
	Tons.	%	Tons.	%	Tons.	%	Tons.	%	Tons.	%
Canada ...	2,585.26	17.40	7,514.39	29.30	10,262.54	34.14	10,394.83	30.00	8,746.21	34.02
Great Britain.	167.13	1.13	222.08	.85	31.34	.10	393.73	1.06	.....	.....
United States..	12,098.95	81.47	17,439.42	68.70	19,657.19	65.46	23,686.59	68.24	16,745.35	65.13
Germany .	.....	.....	229.46	1.15	106.51	.30	235.14	.70	218.66	.85
Totals..	14,851.34	100.00	27,405.35	100.00	30,057.58	100.00	34,710.29	100.00	25,710.22	100.00

Smelting.

The following is a list of the smelting companies that received ore from the Cobalt District during 1911, accompanied by some of the schedules on which the purchases were made. As far as possible the tariffs given are those that were in force on 1st January 1912.

Canadian.

1. Canadian Copper Company, Copper Cliff, Ontario.
2. Canadian Refining & Smelting Company, Ltd., Orillia, Ont.
3. Coniagas Reduction Company, Thorold, Ont.
4. Deloro Mining & Reduction Company, Deloro, Ontario.

Foreign.

5. American Smelting & Refining Co., Perth Amboy, N.J. and Denver, Colo., U.S.A.
6. Balbach Smelting & Refining Company, Newark, N.J., U.S.A.
7. Beer Sondheimer & Company, Frankfort-on-Main, Germany, and New York City, U.S.A.
8. Government of Saxony, Saxony, Germany.
9. Pennsylvania Smelting Company, Pittsburg, Pa., U.S.A.
10. United States Metals Refining Company, New York City, U.S.A.

1. Canadian Copper Company, Copper Cliff, Ontario.

During the year 1911 the Cobalt plant of the Canadian Copper Company handled 3,350 tons of Cobalt silver ore containing about 7,000,000 ounces of silver.

All ore purchases are made by the Orford Copper Company of New York, and the following is a curtailed schedule for arsenical-cobalt-silver ores.

Schedule.

Purchaser to make payment for:

84%	of silver	per ton	of ore	(2,000 lbs.)	when same assays	200- 500 ounces
85%	"	"	"		"	500- 600 "
87%	"	"	"		"	600- 800 "
90%	"	"	"		"	800-1,000 "
92%	"	"	"		"	1,000-1,300 "
93%	"	"	"		"	1,300-1,600 "
93½%	"	"	"		"	1,600-2,000 "
94½%	"	"	"		"	2,000-2,500 "
95%	"	"	"		"	2,500-3,000 "
95½%	"	"	"		"	3,000-4,000 "
96%	"	"	"		"	4,000-5,000 "
96½%	"	"	"		"	5,000 and over ounces

Ore to be delivered to the Canadian Copper Company, f.o.b. cars Copper Cliff, Ontario, ore to be at shipper's risk until sampling is undertaken, as purchaser can assume no responsibility for the ore until same has been taken into its sampler.

Purchaser to sample at its expense, purchaser's and seller's representatives to be present. Assays to be made by Ledoux & Company, of New York, at seller's expense, which assays are to govern in settlement.

Payment for 70 per cent. of the silver returnable to the seller as per the above scale, to be made at the New York official price or the silver on the first settlement date, which shall be thirty days after the date on which sampling of the ore is completed, and the balance (30 per cent.) on the second settlement date, at the New York official price for silver on that date, which shall be 60 days after sampling of the ore is completed. The purchaser, however, reserves the right to deliver upon either, or both of the settlement dates above specified, in lieu of cash, at its option, such silver bullion (Commercial bar bullion) as is due the seller in settlement upon these dates, such delivery to be made in New York City.

2. Canada Refining and Smelting Company, Ltd., Orillia, Ont.

This Company blew in its furnace on 20th February, 1911, but was closed down later on for two months while the plant was being enlarged. Its present capacity is from 15 to 20 cars monthly, or double what it was when operations started.

The smelting schedule remains unchanged and is as follows:

Schedule.

84%	of silver by	commercial assay,	200	oz. and over	per ton,	2,000 lbs.
86%	"	"	300	"	"	"
89%	"	"	500	"	"	"
91%	"	"	750	"	"	"
93%	"	"	1,000	"	"	"
93½%	"	"	1,500	"	"	"
94½%	"	"	2,000	"	"	"
95%	"	"	2,500	"	"	"

Ores containing less than 3,000 ounces per ton are subject to a refining charge of ½ cent per ounce, and ores containing less than 1,500 ounces per ton are subject to a refining charge of ¾ cent per ounce. Ores containing less than 1,000 ounces per ton are subject to a treatment charge of $10.00 per ton in addition to above.

Terms of payment for silver.

Seventy-five per cent. of amount 30 days after date of weighing and sampling report.

Twenty-five per cent. of amount 90 days after date of said report.

Price of silver to be New York official quotation.

Ore to be delivered f.o.b. Orillia, car load lots at owner's risk.

Weights to be taken after milling and moisture determination. When so desired, Campbell & Deyell's sampling and weights will be accepted as final, and in case of dispute on assays, settlement will be made on assays of Campbell & Deyell's as umpire, or such other umpire which may be mutually agreed upon by both parties.

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3. Coniagas Reduction Company, Limited, St. Catharines, Ont.

The plant of the Coniagas Reduction Company treated about 6,000,000 ounces of silver during 1911, most of the resulting bullion being shipped to London, England.

About 130 men are employed with an annual pay roll of about $100,000 per year.

The following is in condensed form the smelting schedule that went into effect on November 1st, 1911.

Schedule.

Percentage of silver to be paid for on commercial assay of silver content per ton of 2,000 pounds as follows:

55%	for	50	ounces	and proportionate	increase	in percentage up to
73%	"	200	"	"	"	"
78%	"	300	"	"	"	"
84%	"	500	"	"	"	"
91.5%	"	1,000	"	"	"	"
92.5%	"	1,500	"	"	"	"
93.5%	"	2,000	"	"	"	"
95%	"	3,000	and over.			

Sampling to be at vendor's expense.

All ore purchased to be at a refining charge of ¾ cent per ounce of silver content.

Seventy-five per cent. of amount 30 days after date of weighing and sampling report.

Twenty-five per cent. of amount 90 days after the date of said report.

Price of silver to be determined by New York quotation as given by Messrs. Handy & Harman to Western Union Telegraph Company on dates of settlement.

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4. Deloro Mining & Reduction Company, Limited, Deloro, Ont.

The smelting schedule of this company published at the beginning of 1911 was still in force on the 1st of January, 1912, and is as follows:

Schedule.

Treatment charge—$25.00 per ton of ore.

Refining charge—¾ of a cent per ounce of silver contents on ore assaying 3,000 ounces and over per ton. One cent per ounce of silver contents on ore assaying 2,000 to 3,000 ounces per ton. One and one-half cents per ounce of silver contents on ore assaying less than 2,000 ounces per ton.

Terms of payment—Seventy-five per cent. of net proceeds at Handy & Harman's New York quotation, 30 days after completion of sampling, twenty-five per cent. of net proceeds at Handy & Harman's New York quotation 90 days after completion of sampling.

Ore to be delivered in car-load lots f.o.b. Marmora Station, C. O. Railway, and to be at shipper's risk until sampling is undertaken.

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5. American Smelting & Refining Company, New York, U.S.A.

Of the foreign smelting companies receiving silver ores from Cobalt the American Smelting & Refining Company received the largest tonnage. The ore was consigned to both Perth Amboy, N.J. and Denver, Colo., and consisted of both high and low grades.

The prices offered by this company vary according to the grade and analysis of the different ores submitted, and also as to whether or not occasional shipments are involved or time contracts for entire outputs. Prices are also contingent to some extent upon length of contract and upon operating conditions at the smelter at the time any definite tonnage is offered. An idea of the prices ruling may, however, be gathered from the following contract rates which are now in effect.

Contract Rates.

For Ores Assaying 1,000 Ounces or Over per Ton.

Silver.—Pay for 95 per cent. of the silver contents at New York quotation.

Treatment Charge.—$7.00 per ton of 2,000 pounds, dry weight.

Arsenic.—An addition to the working charge will be made at the rate of 25 cents per dry ton for each per cent. of arsenic in excess of 5 per cent.

Sampling free.

Payment.—Thirty days after agreement of assays.

For Ores Assaying 1,000 Ounces and Over 60 Ounces per Ton.

Silver.—Payment for 95 per cent. of the silver contents at the New York quotation.

Treatment Charge.—$7.00 per ton of 2,000 pounds, dry weight.

Arsenic.—An addition to the working charge will be made at the rate of twenty-five cents per dry ton for each per cent. of arsenic in excess of 15 per cent.

Payment.—Cash settlement upon agreement of assays.

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6. Balbach Smelting & Refining Company, Newark, N.J., U.S.A.

This smelting company has not been offering a regular schedule for silver ores from the Cobalt District. It did, however, make some purchases during the year, returning 93 per cent. of the silver contents in ores assaying about 2,000 ounces silver per ton.

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7. Beer Sondheimer & Company, New York, U.S.A.

At the beginning of 1911 a few purchases of silver ores from Cobalt were made by the New York agency of Beer Sondheimer & Company, of Germany, but now the company is out of the market for these ores.

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8. Government Smelter, Saxony.

The Government Smelter of Saxony has been receiving some high grade ore from Cobalt on the following contract basis:

Pay for 96 per cent. silver contents on Hamburg quotation of silver.

Payment.—30 days after arrival in Hamburg.

Ore must assay at least 4,500 ounces silver per ton.

Above contract is made on a minimum of six cars.

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9. Pennsylvania Smelting Company, Pittsburg, Pa., U.S.A.

The smelting schedule of the Pennsylvania Smelting Company on the 1st of January, 1912, was the same as that which ruled throughout 1911, except that on ores running over 2,800 ounces silver per ton a sliding scale is offered which gives a better percentage recovery to the shipper in proportion as the ore increases in silver contents. It is now as follows:

Schedule for Ores Below 2,800 Ounces.

For ores containing less than 200 ounces of silver to the ton we pay the New York silver price, less ¾ cent per ounce for 95 per cent. of the silver contents, less treatment charge of $8.00 per ton.

For ores containing 200 to 400 ounces silver per ton, we will pay the New York silver price, less ½ cent per ounce, for 95 per cent. of the silver contents, less treatment charge of $8.00 per ton.

For ores containing 400 to 2,000 ounces per ton we will pay the New York silver price, less ¼ cent per ounce for 95 per cent. of the silver contents, less a treatment charge of $8.00 per ton.

For ores and course concentrates containing 2,000 ounces and upwards of silver per ton, we will pay the full New York silver price, for 95 per cent of the silver contents, no treatment charge.

For Vanner or Wilfley products, we will pay the New York silver price, less one cent per ounce for 94 per cent. of the silver contents, less $8.00 per ton treatment charge.

For jig concentrates containing from 400 to 2,000 ounces silver per ton, we will pay the New York silver price, less ½ cent per ounce for 95 per cent of the silver contents, less treatment charge of $8.00 per ton.

Low grade "ores" are expected to run less than 10 per cent. arsenic.

All the above f.o.b. cars our works, Carnegie, Pa., P.C.C. and St. Louis Railway.

Schedule for Ores above 2,800 Ounces.

No treatment nor refining charge.

For ores between 2,800 and 3,000 ounces 95½ per cent. of the silver contents is paid for and increase the percentage of silver paid for by one-tenth of 1 per cent. for every 200 ounces, up to 4,800 ounces per ton. For ores assaying over 4,800 ounces the percentage of silver paid for is constant at 96½ per cent. All other conditions are same as for ores below 2,800 ounces.

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10. United States Metals Refining Company, New York, U.S.A.

Plant at Chrome, N.J., U.S.A.

This company is not issuing an open schedule, but for the few ores secured the prices vary with the nature of the ores, but the terms must necessarily be as low as those offered by competitors upon the same classes of ores.

Power.

The spring break-up of 1911 was late in arriving and was not preceded by any temporary thaws. This delayed the spring freshets, so that before they arrived the storage reservoirs of the power companies on the Montreal and Matabitchouan Rivers were practically exhausted. So pronounced was the shortage of water that the production of power was materially affected. The mining companies that were dependent on this power were practically closed down, while the more fortunate companies, that still had an auxiliary steam plant to fall back on, rushed in a supply of coal and started up their compressors once again with steam. This noticeably cut down the volume of ore shipments during the first three months of the year. For the summer and early fall, power conditions were favorable, until an early freeze-up again threatened the water supply on the Matabitchouan. Later mild weather relieved this shortage and the year closed with conditions normal.

Towards the end of the year a consolidation took place of the two Montreal River Power Companies, viz: The Cobalt Power Company and the Cobalt Hydraulic Power Company, under the name of The Northern Ontario Light and Power Company, Limited. This allowed all the electrical contracts to be filled by the Hound Chute plant, leaving the compressed air contracts alone to the Taylor plant at Ragged Chutes.

The economies effected by the use of power from hydraulic developments are such that in except, in the case of a few small isolated plants, steam power has been totally or largely done away with. Of course steam boiler plants are still used for heating purposes, and in many cases steam is still preferred to electricity for hoisting, so that a considerable quantity of coal is still brought into the camp. This is shown by the following table of coal shipments into the camp, the point being easily located, in the spring of 1910, when hydraulic power was introduced.

The year's consumption of coal was about 42 per cent. of the 1909 consumption, when the former conditions under steam power may be considered to have been normal.

Coal Received in Cobalt.

(Tons of 2,000 lbs.)

Month.	1909.	1910.	1911.
January	7,687	8,375	9,548
February	8,136	8,462	5,150
March	10,173	12,212	6,884
April	9,930	3,381	4,575
May	5,771	3,079	1,858
June	4,102	1,817	1,224
July	5,677	702	899
August	5,060	2,106	612
September	6,173	2,016	852
October	9,007	1,817	1,511
November	14,957	3,295	3,065
December	18,743	5,596	8,038
Totals	105,416	52,861	44,216

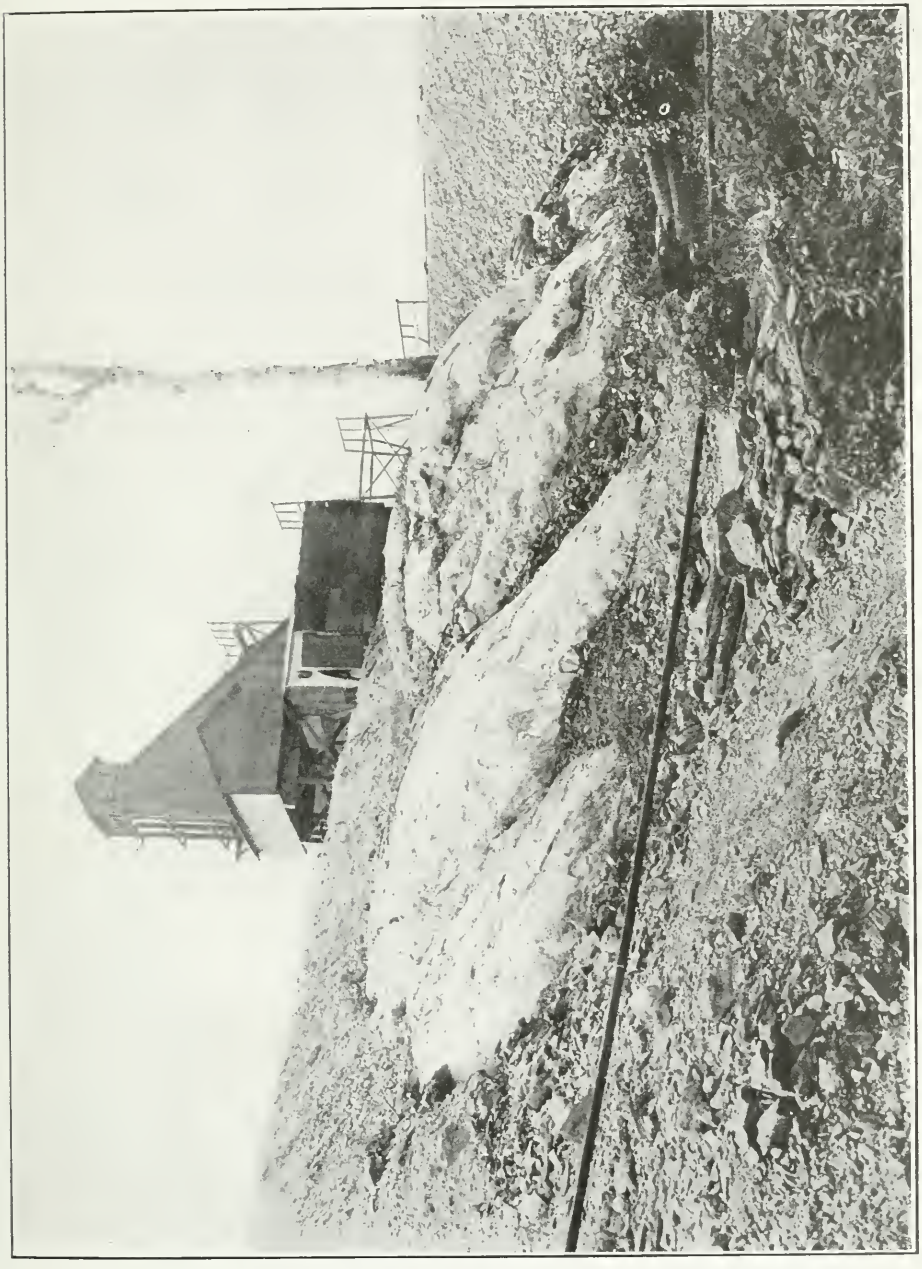
The most important further call for power that is now in sight is from the Nipissing Mine, which will require a further 2,275 horse power when it starts using its hydraulicing plant, and installs its mill and other improvements now under way.

Gold.

Two years ago gold finds at Porcupine, 120 miles north west of Cobalt, resurrected interest in gold mining in Ontario that had been practically dead for a number of years. Preliminary development disclosed some large and promising ore bodies and soon large monied interests were well represented in the new field.

The year 1910 was marked by considerable activity in the camp. A number of preliminary development plants were installed and three small stamp mills were put into commission. With these the value of the properties was proven, and plans were forthwith made for the erection of large mills.

During the winter of 1910-11 materials and supplies were teamed in over the snow from Kelso, the nearest point on the railway. In the early spring the



Quartz Outcrop, "The Dome," Dome Mine, Porcupine, Ont.

Hollinger lost most all its surface buildings in a forest fire and had to make a fresh start. On the 10th July, 1911, it was again fire swept, but this time it did not suffer alone as most of the other large operators, as well as many smaller ones, lost practically all their surface improvements. The human victims in this fire numbered over seventy. These fires gave the new camp a violent set-back, but its vitality was shown in its rapid recovery. During December, 1910, the Ontario Government decided to build a spur into Porcupine, and in January, 1911, commenced construction. On July 1st the first regular passenger train ran into Porcupine. It was well that the railway had reached the camp when the fire occured for it was able to rush in supplies of all kinds for the relief of the sufferers, and also to bring out those that required closer medical attendance than could be given in the camp. Orders for supplies and equipment were immediately placed and active construction re-commenced. The work of two mining companies in the District is particularly noteworthy, viz: The *Dome* and the *Hollinger*.

Dome.

Most of the development at this mine has been done at the 50 foot level. From the first it was realized that the ore body was a large one and on account of the irregularity of the values, sampling is difficult. The ground is being opened up by drifts and crosscuts blocking the ore out into 100 foot squares. This work was supplemented by diamond drilling. Some twenty holes were put down, which gave the management assurance of continued values at depth. With this assurance elaborate preparations were planned for the surface handling of the ore. Just as the plant was nearing completion it was wiped out by the disastrous fire of July. Orders duplicating the plant were immediately placed and re-construction rushed ahead, so that now the new plant is rapidly nearing completion. The flow sheet here given shows in barest outline the treatment methods adopted.

The power plant consists of the following:

7—150 H.P. Babcock & Wilcox boilers. 160 pound steam.

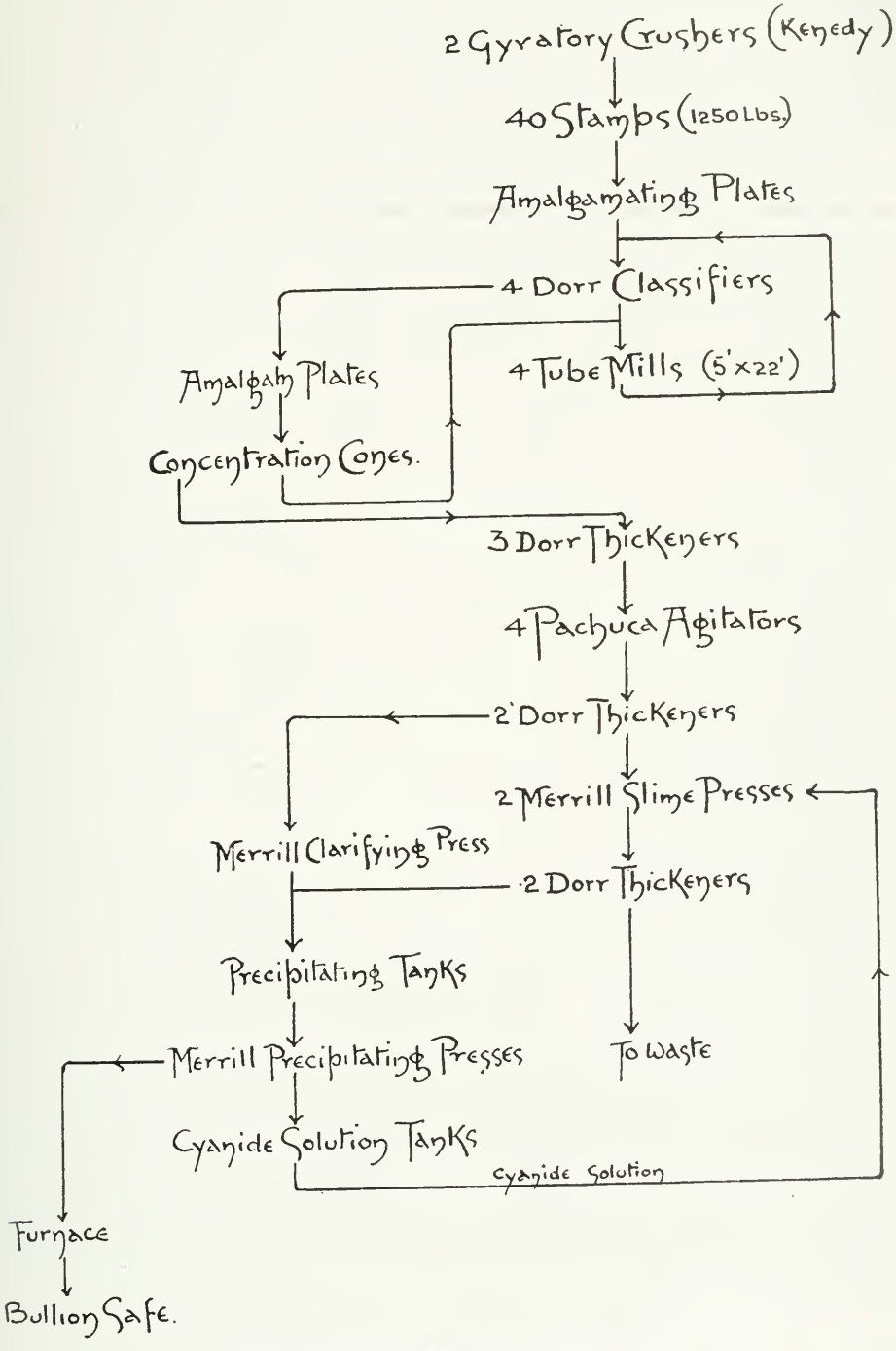
4—Robb engines, 400 H.P. each driving.

2—Allis-Chalmers-Bullock generators, 300 K. W.

1—12 Drill Rand compressor, compound steam and air with 8 foot fly wheel for belting to a motor.

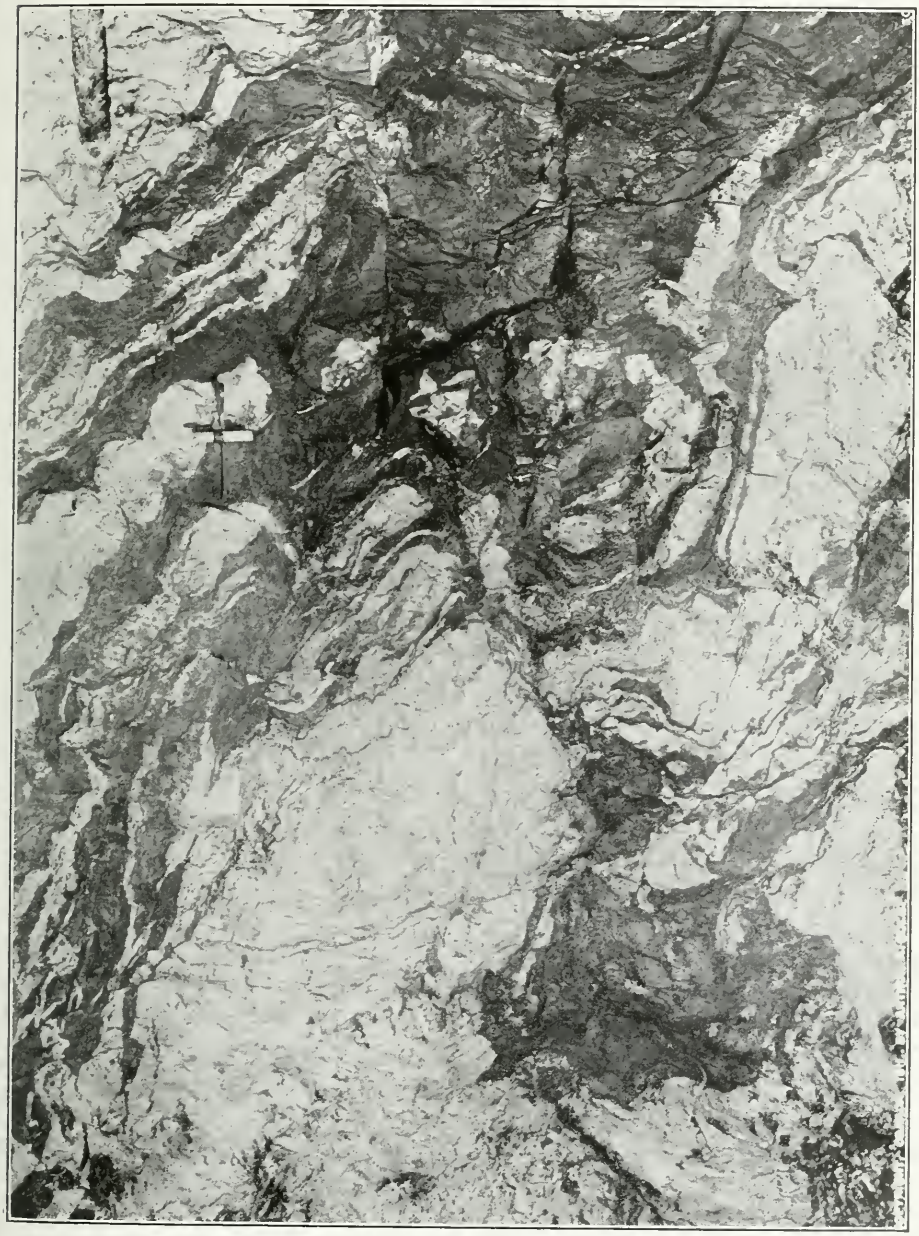
1—Allis-Chalmers double drum hoist, capacity 1,000 pounds, 600 feet per minute.

The company is thus prepared to generate its own power or can at will use the power supplied by the Porcupine Power Company.



FLOW SHEET, DOME MILL, PORCUPINE.

Quartz Outcrop, Hollinger Mine, Porcupine, Ont.



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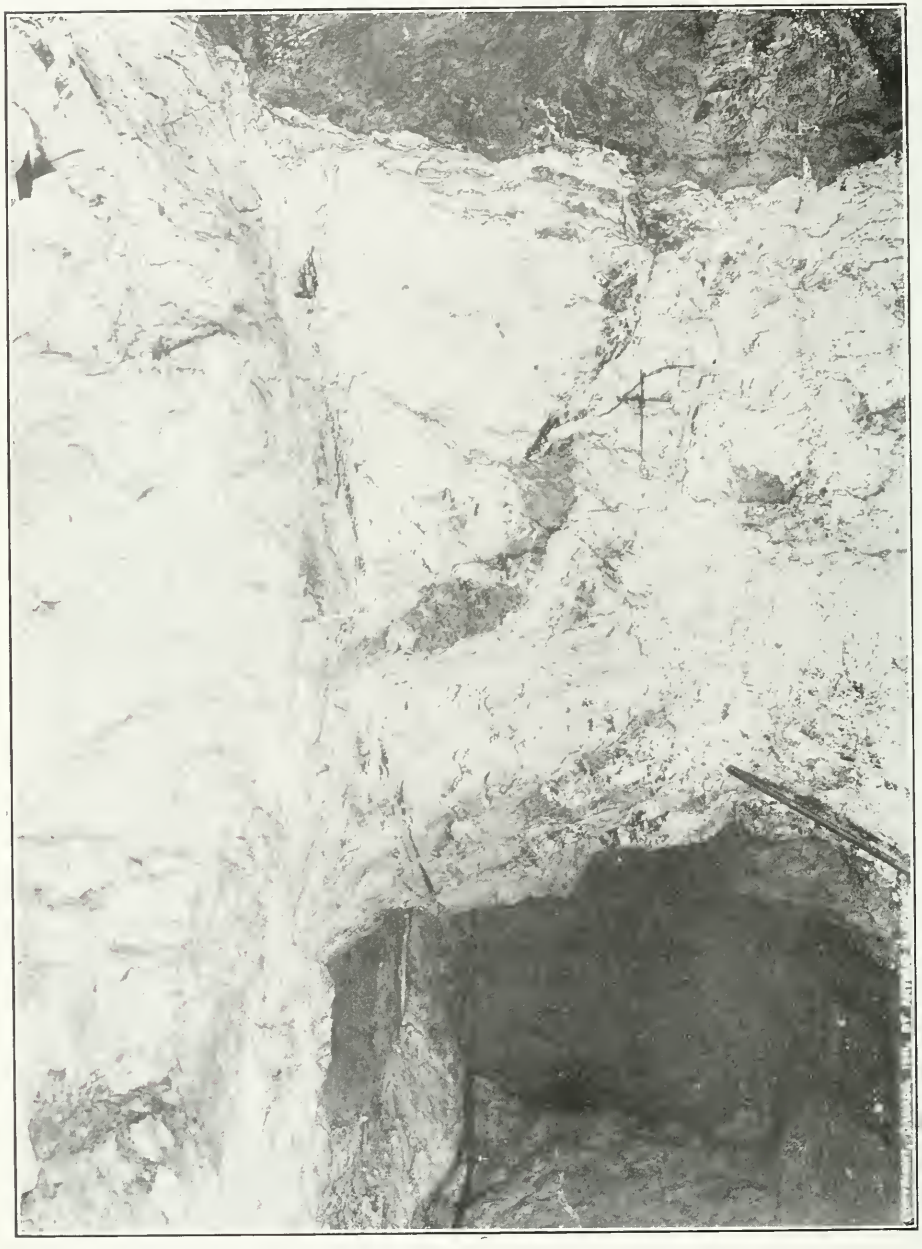
Mixed Quartz and Schist, assaying $32.00 gold per ton, 100 foot level, Hollinger Mine, Porcupine, Ont.



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Quartz Vein, 12 feet wide, assaying $71.00 gold per ton, 100 foot level, Hollinger Mine, Porcupine, Ont.

Hollinger.

At the Hollinger development extends to the 200 foot level, with better results on this level than on the 100 foot or the surface. The flow sheet following explains in outline the methods to be adopted by this company.

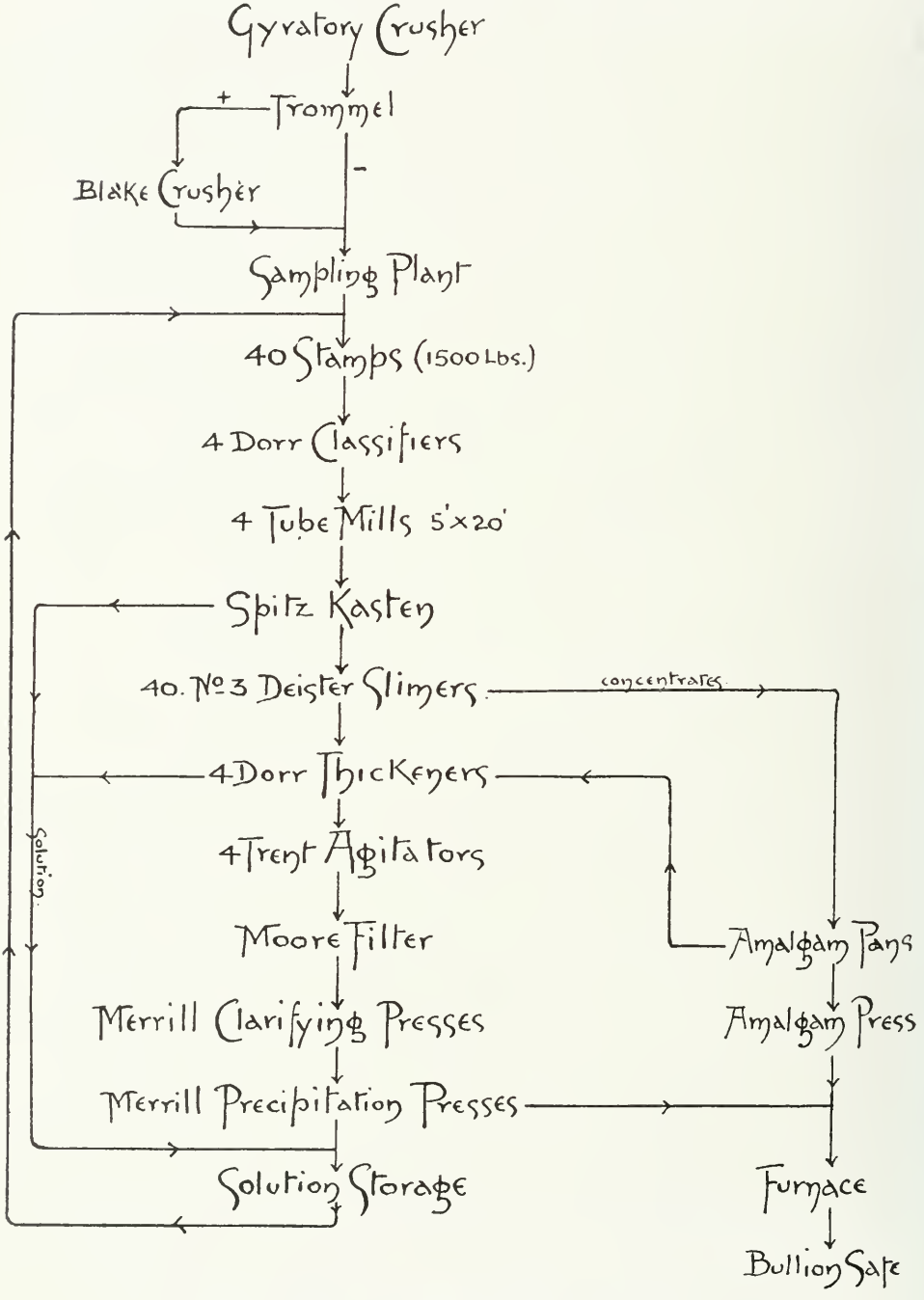
The two companies mentioned are the farthest ahead with development in the District, and will doubtless be regular gold producers by next spring. A number of other mining companies are quietly prospecting good underground work and as soon as they consider that they have enough ore blocked out they will erect mills. Thus the Vipond is replacing its small prospecting plant with a much larger one for the purpose of facilitating underground development.

As a section the greatest activity in the District, apart from the Dome and Hollinger, has been shown around Pearl Lake, where a number of very promising prospects are giving satisfactory results as development proceeds. The T. & N. O. Railway has been extended through this section to the Hollinger mine with a good prospect of securing a considerable traffic.

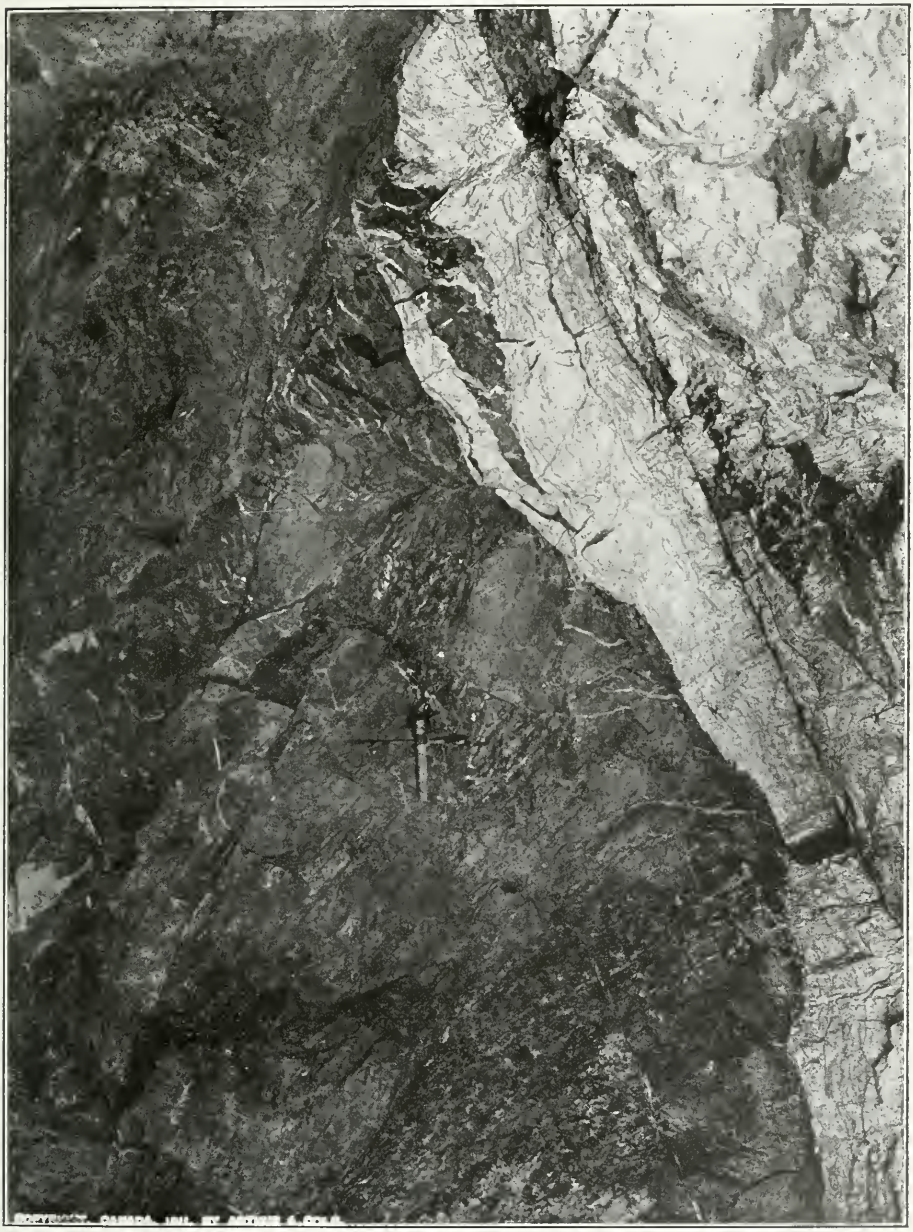
At the present time there appears to be three sections around which activity centres, one to the north of Porcupine Lake, a second around the Dome and the third at Pearl Lake. Each section is producing some promising results, but the third is undoubtedly the most fruitful.

The history of Cobalt assisted Porcupine at its discovery, for the large profits and quick returns of the shipping mines of the Cobalt District prepared a large number of seekers for similar riches elsewhere. It is only now that some of these people are beginning to realize that it takes a large amount of both capital and time to place a gold property on a paying basis. The wildcat promoter and the prospector who has not enough faith in his property to accept a reasonable price for a working option have both had their day, and the inevitable reaction has set in. This will likely clear the air and give a reasonable show to the legitimate mine operator.

The glamour of Porcupine has caused the other gold camps in the district to be dwarfed, but good healthy progress has been made in Swastika, Munro and Larder Lake. Properties are getting into the hands of men with the necesary capital and patience to develop and prove them, so that the future promises healthy advances which in the end is of more lasting benefit to the industry than the rush of a boom.



FLOW SHEET, HOLLINGER MINE, PORCUPINE.



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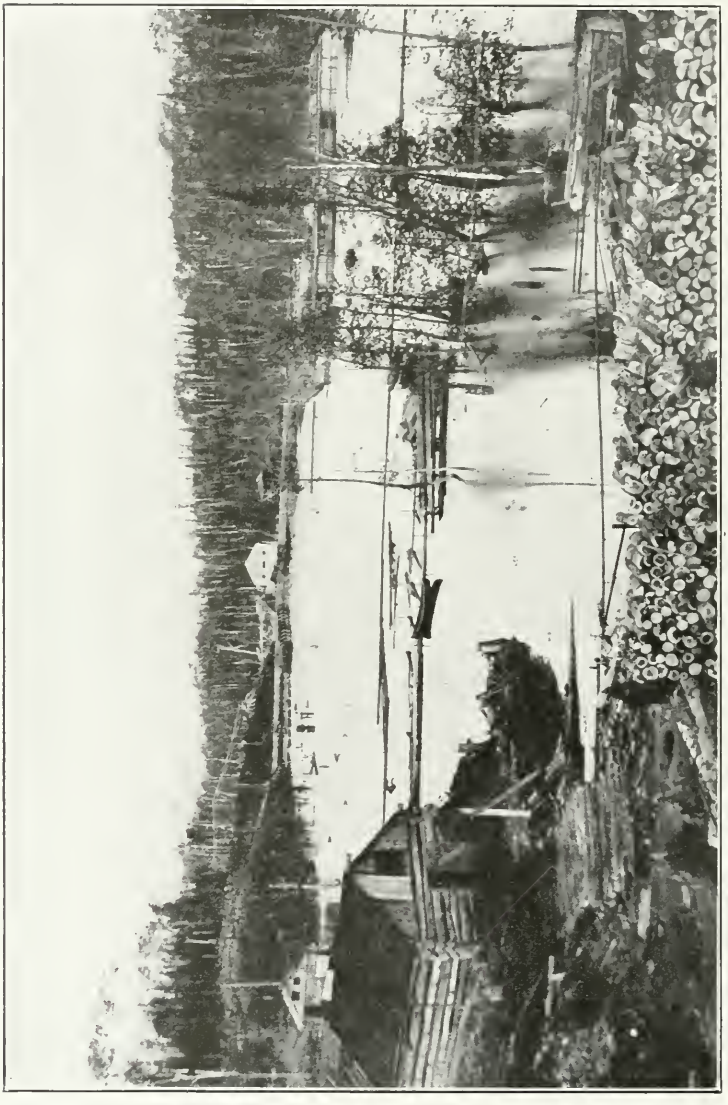
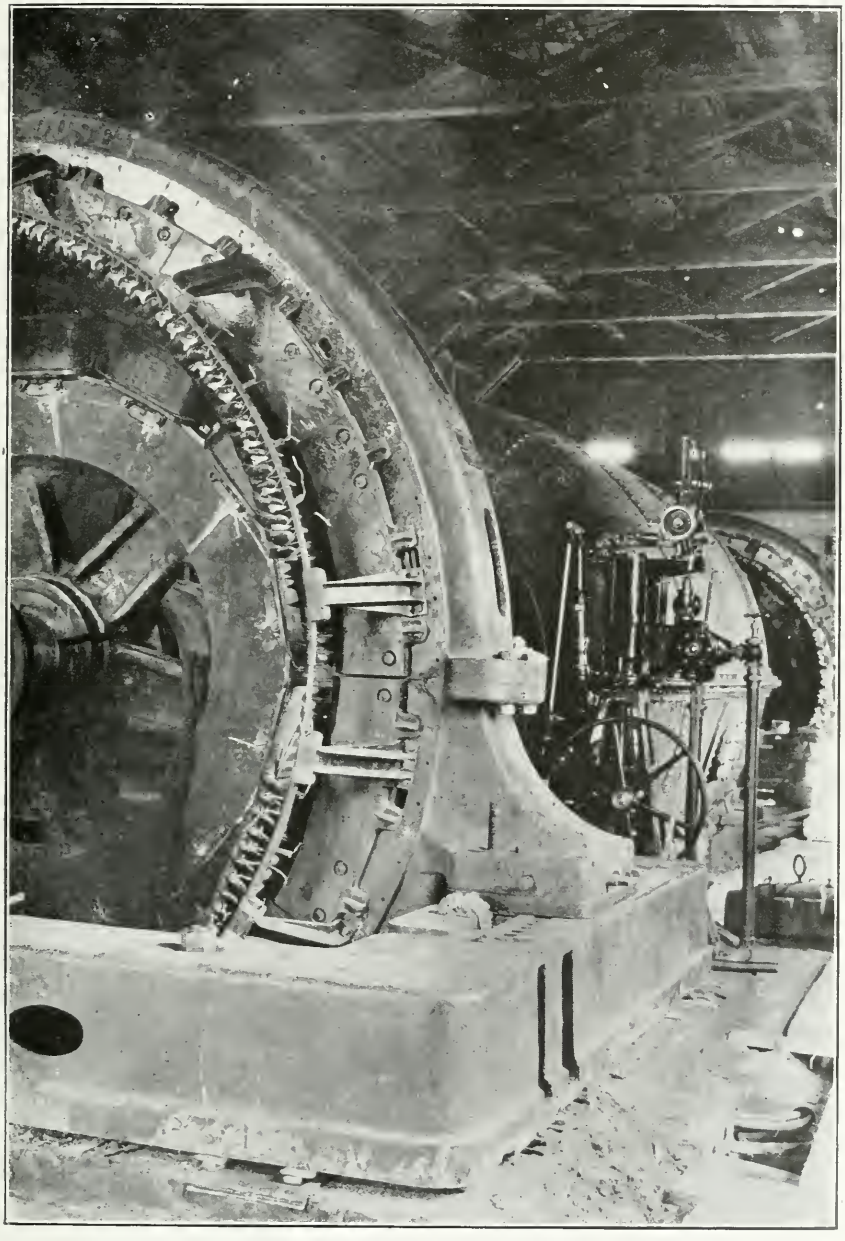
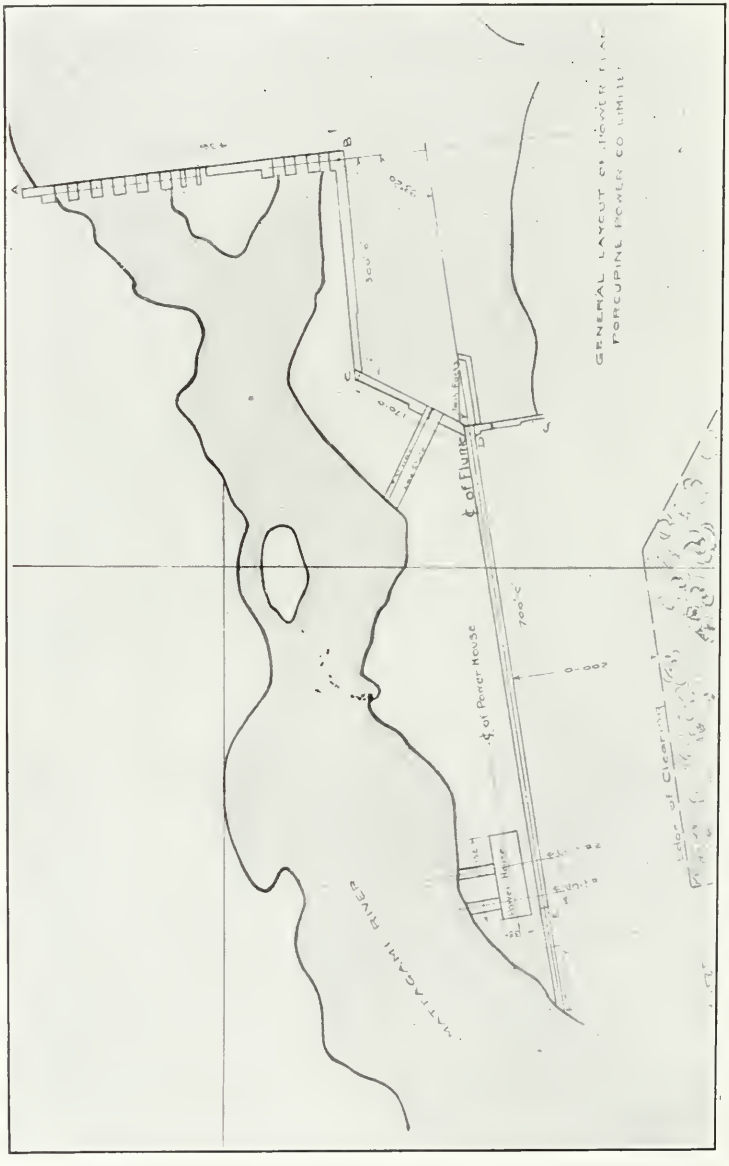
Quartz Vein, assaying $20.00 gold per ton, 100 foot level, Swastika Mine, Swastika, Ont.



General Panorama showing Forebay, Dam and Power House, Porcupine Power Company, Porcupine, Ont.



Power House, Porcupine Power Company, Porcupine, Ont.



Plan of Power Plant, Porcupine Power Company, Porcupine, Ont.

Power.

At Sandy Falls, six miles north-west of the Hollinger Mine, or eight miles from Timmins Landing down the Mattagami River, the Porcupine Power Company has installed a hydro-electric power plant for the purpose of supplying power to the Porcupine District. The installation consists of two pairs of 43 inch turbines, rates at 1,700 horse power with a 34 foot head, and two generators of 1,500 horse power each, 25 cycle, 3 phase, 12,500 volt, 214 r.p.m. Foundations for a third unit of 1,500 electrical horse power have been prepared and this addition to the plant can be made when ever required. This Company is now supplying light and power to the towns of Porcupine and South Porcupine, and to the following mines: Hollinger, McEnaney, Plenaurum and Dome.

The mines are thus in a fortunate position of having power developed for them in advance of the time that they are ready to utilize it.

Construction has been started by Mr. E. A. Wallberg on another power plant at Wawaitan Falls, situated eleven miles south-west of the Hollinger mine.

The Miner as a Colonizer.

The Temiskaming and Northern Ontario Railway as originally projected was to be a colonization road for the purpose of settling the rich clay agricultural lands known as the Clay Belt of Northern Ontario. If the Railroad had been entirely dependent for its tonnage on the agricutural resources of the country, it is quite probable that the train service that the country would now be receiving would consist of a mixed train every alternate day, instead of, as at present, two through passenger trains daily, with sleepers and cafe cars and local trains where required. The reason for the difference lies in the fortunate discovery of productive mining camps in the vicinity of the Railway.

As soon as it becomes known that a country offers fair chances of success as a mineral producer, few obstacles are great enough to keep out the prospector. He is a true pioneer and if his efforts are rewarded by the discovery of valuable ore, his word acts like magic in calling to his side a host of eager followers. Along with these, or closely following, comes the miner. All these men together form an army that is absolutely dependent on outside sources of supply. As such, it forms a strong magnet for a farming population, if only the right kind of land can be found in the vicinity.

A miner's work is hazardous and consequently he receives higher wages than the average wage earner. Having more, he is naturally above the average as a spender; and he is a cash customer. His work is heavy, so he must be well fed.

What greater inducement could be offered to a farmer than rich land in the vicinity of a large cash market, where good prices are paid for a good article supplied. These are the conditions that rule in the Cobalt District.

In order to illustrate this point in more concrete form the following tables have been compiled from figures supplied by the mining companies of Cobalt.

FOOD SUPPLIES FOR COBALT MINES, 1911.

Article.	Quantity.	Cost.	No. of Men.	Quantity per man per year.	Cost per man per year.	Quantity per man per day.	Cost per man per day.
Flour	9,576 bgs.	$27,842	3,020	317 lbs.	$ 9.22	.87 lbs.	$.0253
Potatoes	18,918 "	21,554	"	626 "	7.14	1.72 "	.0196
Vegetables	.....	21,520	"	.....	7.12	.....	.0195
Cereals	.....	3,290	"	.....	1.09	.....	.0030
Cornstarch	.....	688	"	.....	.23	.....	.0006
Biscuits	.....	2,005	"	.....	.66	.....	.0018
Beef, Veal, Mutton, Lamb	1,039,932 lbs.	134,944	"	344 lbs.	44.69	.94 lbs.	.1224
Pork, Ham and Bacon	504,396 "	66,483	"	167 "	22.01	.46 "	.0603
Fowls	19,152 "	4,897	"	6 "	1.62	.02 "	.0044
Lard, etc	113,760 "	15,729	"	38 "	5.21	.10 "	.0143
Butter	211,518 "	54,890	"	70 "	18.18	.19 "	.0499
Eggs	2,240,840	46,967	"	742	15.55	2.03	.0426
Milk and Cream	.....	21,010	"	.....	6.96	.....	.0190
Cheese	20,718 lbs.	3,218	"	7 lbs.	1.06	.002 "	.0029
Fruit, Jams	.....	60,556	"	.....	20.05	.....	.0549
	.....	$485,593	.....	.....	$160.79	.....	$.4405

FOOD SUPPLIES FOR STABLES FOR MINES AT COBALT, 1911.

Article.	Quantity.	Cost.	No. of Horses.	Quantity per horse per year.	Cost per horse per year.	Quantity per horse per day.	Cost per horse per day.
Hay	991,250 lbs	$ 7,333	122	8,125 lbs	$ 60.11	22.27lbs	$ .165
Oats	713,882 "	10,058	"	5,851 "	82.44	16.03 "	.226
	.....	$17,391	122	.....	$142.55	.....	$ .391

The significance of these figures is emphasized when it is remembered that these tables only refer to the Cobalt Camp proper. If other camps are considered such as Gowganda, Elk Lake, South Lorrain, Porcupine, Swastika, Munro and Larder Lake, the amounts of supplies consumed assume very considerable proportions.

Needs the farmer further evidence that he is wanted here, that his interest is here, than the foregoing tables? And are they not also a strong plea for the most liberal treatment of the mining operator, since he is without doubt, both directly and indirectly, one of the best revenue producers that the railway has, and incidentally as a colonizer he has few equals.

FINANCIAL STATEMENTS

GENERAL BALANCE SHEET.

ASSETS.

Property Owned:—		
Cost of Road to Oct. 31, '10	$14,193,619 51	
Cost of Road to Oct. 31, '11	1,127,885 57	
		$15,321,505 08
Cost of Equip. to Oct. 31, '10	1,718,802 12	
Cost of Equip. to Oct. 31, '11	164,614 78	
		1,883,416 90
Working Assets:—		
Cash	405,391 53	
Foreign Freight Balance	12,887 24	
" Ticket Balance	3,557 96	
Net Bal. due from Agents and Conductors.	22,374 95	
*Accounts Collectable	350,925 53	
Material and Supplies	273,316 09	
		1,068,453 30
Deferred Debit Items:—		
Paymaster's Advance	7,000 00	
Treasurer's Advance	50 00	
Insurance Paid in Advance	9,467 86	
Advance, Contracts—McRae, Chandler & McNeil	127,000 00	
Unexpended Amount—Porcupine Branch Construction	43,126 08	
Accounts in Suspense	33,238 96	
		219,882 90
Nipissing Central Railway Company		235,483 81
		$18,728.741 99

LIABILITIES.

Debit:—		
Provincial Loan Account		$17,535,662 69
Working Liabilities:—		
†Accounts Payable, Inc. Pay Rolls	$837,013 98	
Car Mileage and Per Diem Balance	6,473 18	
Foreign Telegraph	3,515 75	
Unclaimed Wages	2,391 76	
Deposit on Sidings	4,863 13	
Deposit on Contracts	22,568 78	
		876,826 58
Free Surplus:—		
Profit and Loss—Balance		316,252 72
		$18,728,741 99

PROFIT AND LOSS.

Paid Treasurer of Ontario	$515,000 00	By Balance, October 31st, 1910	$238,176 60
Doubtful Accounts written off	76 57	By Net Revenue	593,152 69
Balance Carried Forward	316,252 72		
	$831,329 29		$831,329 29

* Includes Bill Collectable for $200,000 advanced by Provincial Treasurer.

† Includes Bill payable, $515,000 paid Provincial Treasurer.

STATEMENT SHOWING AMOUNT EXPENDED ON CONSTRUCTION, INCLUDING PORCUPINE BRANCH.

Year ending October 31st, 1911.

Engineering	$70,341 39
Grading	354,643 97
Bridges, trestles and culverts	47,444 04
Ties	52,190 21
Rails	125,532 82
Frogs and switches	6,539 87
Track fastenings and other material	22,339 92
Ballast	106,087 60
Tracklaying and surfacing	26,404 84
Fencing right of way	599 25
Crossing and signs	1,868 98
Telegraph and telephone lines	14,613 22
Station buildings and fixtures	28 548 07
General office buildings and fixtures	696 77
Shops, engine houses and turntables	7,600 79
Shop machinery and tools	281 74
Water stations	998 47
Fuel stations	6,590 39
Miscellaneous structures	18,874 12
Law expenses	433 85
Stationery and printing	385 47
General expenses	8,658 60
Repairs of equipment	2,834 84
Rent of equipment	9,606 78
Transportation of men and materials	15,618 51
Insurance	1,564 35
General fire loss	18,353 17
Exploration—new lines	11,139 10
	$960,791 13
Operating earnings during construction	5,549 17
Total construction	$955,241 96

STATEMENT SHOWING AMOUNT EXPENDED ON CONSTRUCTION OF PORCUPINE BRANCH.

November 1st, 1910, to October 31st, 1911.

Engineering	$21,638 77
Right of way and station grounds	1,504 15
Grading	337,751 20
Bridges, trestles and culverts	42,651 22
Ties	48,858 03
Rails	121,407 03
Frogs and switches	5,616 64
Track fastenings and other material	20,115 61
Ballast	106,154 25
Tracklaying and surfacing	25,143 10
Telegraph and telephone lines	8,540 40
Station buildings and fixtures	21,010 06
General office buildings and fixtures	693 71
Water stations	974 31
Miscellaneous structures	18,922 61
Stationery and printing	385 47
General expenses	8,658 60
Repairs of equipment	2,834 84
Rent of equipment	9,027 06
Transportation of men and materials	15,618 51
Insurance	1,564 35
General fire loss	18,353 17
	$837,423 09
Operating earnings during construction	5,549 17
	$831,873 92

STATEMENT SHOWING AMOUNT EXPENDED ON ADDITIONS AND BETTERMENTS.

Year ending October 31st, 1911.

Right of way and station grounds	$6,843 14
Widening cuts and fills	4,962 32
Protection of banks	3,601 81
Grade revisions and changes of line	7,605 11
Bridges, trestles and culverts	5.576 74
Track fastenings and other material	9,017 90
Ballast	1,359 17
Additional main tracks	651 05
Sidings and spur tracks	15,130 21
Terminal yards	20,463 11
Fencing right of way	10,481 62
Telegraph and telephone lines	37,656 80
Station buildings and fixtures	35,482 30
Shops, engine houses and turntables	34 90
Shop machinery and tools	8,843 66
Water and fuel stations	4,933 77
Total additions and betterments	$172,643 61
Expended on construction, 1911	$955,241 96
Expended on additions and betterments, 1911	172,643 61
Expended on equipment, 1911	164,614 78
Total expenditure	$1,292,500 35

Comparative Statement of Earnings and Expenses

TEMISKAMING AND NORTHERN

No.	RECEIPTS.	Per Cent.	1909 November.	Per Cent.	1910 November.
			$ c.		$ c.
	I. Revenue from transportation:				
1	Freight revenue		92,090 74		62,959 66
2	Passenger revenue		48,806 76		40,170 08
3	Excess baggage revenue		564 55		542 00
4	Parlor and chair car revenue				99 65
5	Mail revenue		1,070 26		1,119 66
6	Express revenue		3,281 54		3,031 03
7	Milk revenue (on passenger trains)		3 32		
8	Other passenger train revenue				
9	Switching revenue		426 84		
10	Special service train revenue				
11	Miscellaneous transportation revenue				5 00
	Total		146,244 01		107,927 08
	II. Revenue from operations other than transportation:—				
12	Station and train privileges		166 67		266 66
13	Parcel room receipts				
14	Storage—freight		288 08		101 44
15	Storage—baggage		132 75		79 90
16	Car service demurrage		1,986 75		364 25
17	Telegraph and telephone		5,015 50		2,731 18
18	Rents of buildings and other property		2,369 14		897 43
19	Miscellaneous		1,024 88		63 76
	Total		10,983 77		4,504 62
	Total revenue		157,227 78		112,431 70
	EXPENDITURES.				
i	Maintenance of way and structures	23.7	37,264 09	17.7	19,951 46
ii	Maintenance of equipment	6.6	10,416 05	10.3	11,662 49
iii	Traffic expenses	.8	1,282 54	.9	1,121 88
iv	Transportation expenses	38.2	60,120 51	34.5	39,043 54
v	General expenses	3.5	5,577 03	4.9	5,592 40
	Total operating expenses	72.8	114,660 22	68.3	77,371 77
	Balance		42,567 56		35,059 93
	Other Income:				
	Ore royalties		4,784 48		
	Hire of equipment				
	Total		47,352 04		35,059 93
	Deductions from Income:				
	Hire of equipment		6,804 51		3,494 07
	Outside operations				920 00
	Interest				
	Net balance		40,547 53		30,645 86

by Months, November 1st, 1909, to October 31st, 1911.

ONTARIO RAILWAY.

Per Cent.	1909 December,	Per Cent.	1910 December.	Per Cent.	1910 January	Per Cent.	1911 January.	No.
	$ c.		$ c.		$ c.		$ c,	
.....	96,287 55	.....	87,034 76	.....	86,470 56	.....	90,178 66	1
.....	60,544 27	.....	50,590 17	.....	53,701 42	.....	43,359 24	2
.....	418 95	.....	357 52	.....	563 22	.....	485 55	3
.....	.....	.....	94 35	.....	.....	.....	91 35	4
.....	1,111 43	.....	1,212 13	.....	1,070 26	.....	1,248 71	5
.....	3,124 19	.....	3,253 67	.....	3,502 18	.....	3,441 91	6
.....	1 84	.....	.....	.....	1 28	.....	.....	7
.....	.....	.....	.....	.....	.....	.....	.....	8
.....	.....	.....	.....	.....	298 26	.....	60 41	9
.....	.....	.....	.....	.....	80 00	.....	.....	10
.....	.....	.....	404 84	.....	.....	.....	201 48	11
.....	161,488 23	.....	142,947 44	.....	145,687 18	.....	139,067 31	
.....	166 66	.....	266 66	.....	216 66	.....	266 66	12
.....	.....	.....	.....	.....	.....	.....	.....	13
.....	433 37	.....	150 47	.....	391 36	.....	53 67	14
.....	117 85	.....	49 60	.....	104 60	.....	67 75	15
.....	2,554 00	.....	.....	.....	3,054 00	.....	81 75	16
.....	2,978 74	.....	3,159 78	.....	3,353 89	.....	3,025 17	17
.....	564 43	.....	975 83	.....	1,620 74	.....	1,321 16	18
.....	.....	.....	4 50	.....	.....	.....	9 52	19
.....	6,815 05	.....	4,606 84	.....	8,741 25	.....	4,825 68	
.....	168,303 28	.....	147,554 28	.....	154,428 43	.....	143,892 99	
25.3	42,798 33	10.5	15,598 77	13.7	21,224 46	13.	18,841 90	i
6.4	10,922 46	8.3	12,211 66	8.6	13,301 13	9.5	13,643 98	ii
.1	808 62	.9	1,456 85	.1	908 83	.9	1,207 19	iii
34.3	58,018 04	32.	47,278 14	36.4	56,277 68	39.5	56,912 37	iv
4.3	7,465 07	5.2	7,696 67	3.4	5,379 24	3.8	5,413 93	v
71.4	120,012 52	57.9	84,242 09	62.2	97,091 34	66.7	96,019 37	
.....	48,290 76	.....	63,312 19	.....	57,337 09	.....	47,873 62	
.....	.....	.....	.....	.....	3,520 91	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	48,290 76	.....	63,312 19	.....	60,858 00	.....	47,873 62	
.....	5,258 28	.....	2,066 10	.....	6,445 61	.....	2,548 16	
.....	.....	.....	58 02	.....	.....	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	43,032 48	.....	61,188 07	.....	54,412 39	.....	45,325 46	

Comparative Statement of Earnings and Expenses by Months,

No.	RECEIPTS.	Per cent.	1910 February.	Per Cent.	1911. February.	Per Cent.	1910 March.
	I. Revenue from transportation:		$ c.		$ c.		$ c.
1	Freight revenue	.....	66,668 83	.....	67,567 98	.....	94 279 75
2	Passenger revenue	.....	43,545 96	.....	37,034 55	.....	56,286 80
3	Excess baggage revenue	.....	381 61	.....	519 17	.....	611 82
4	Parlor chair car revenue	.....	.....	.....	88 55	.....	.....
5	Mail revenue	.....	1,082 94	.....	1,231 65	.....	1,162 73
6	Express revenue	.....	3,119 50	.....	3,037 79	.....	2,396 36
7	Milk revenue (on passenger trains)	.....	2 40	.....	144 75	.....	4 87
8	Other passenger train revenue	.....	.....	.....	.....	.....	.....
9	Switching revenue	.....	357 35	.....	.....	.....	413 96
10	Special service train revenue	.....	405 00	.....	.....	.....	300 00
11	Miscellaneous transportation revenue	.....	.....	.....	.....	.....	.....
	Total	.....	115,563 59	.....	109,624 44	.....	155,456 29
	II. Revenue from operations other than transportation						
12	Station and train privileges	.....	310 13	.....	266 66	.....	250 59
13	Parcel room receipts	.....	.....	.....	.....	.....	.....
14	Storage—freight	.....	233 49	.....	59 05	.....	192 85
15	Storage—baggage	.....	80 25	.....	59 75	.....	71 25
16	Car service demurrage	.....	1,502 00	.....	651 65	.....	1,465 00
17	Telegraph and telephone	.....	2,346 40	.....	2,816 69	.....	2,928 78
18	Rents of buildings and other property	.....	793 89	.....	2,317 01	.....	657 13
19	Miscellaneous	.....	.....	.....	9 16	.....	15
	Total	.....	5,266 16	.....	6,179 97	.....	5,565 75
	Total revenue	.....	120,829 75	.....	115,804 41	.....	161,022 04
	EXPENDITURES.						
i.	Maintenance of way and structures	11.5	13,989 48	15.7	18,202 43	10.	16,176 12
ii.	Maintenance of equipment	9.6	11,560 88	11.9	13,863 22	9.1	14,592 68
iii.	Traffic expenses	1.1	1,426 80	1.	1,349 80	.9	1,541 09
iv.	Transportation expenses	42.4	51,236 17	40.3	46,646 48	31.5	50,789 30
v.	General expenses	4.8	5,756 57	5.5	6,313 31	4.	6,480 33
	Total operating expenses	69.4	83,969 90	74.4	86,375 24	55.5	89,579 52
	Balance	.....	36,859 85	.....	29,429 17	.....	71,442 52
	Other Income						
	Ore royalties	.....	4,953 49	.....	7,863 98	.....	.....
	Hire of equipment	.....	.....	.....	.....	.....	.....
	Total	.....	41,813 34	.....	37,293 15	.....	71,442 52
	Deductions from income:						
	Hire of equipment	.....	2,595 94	.....	1,775 94	.....	4,474 77
	Outside operations	.....	.....	.....	631 52	.....	.....
	Interest	.....	.....	.....	.....	.....	.....
	Net balance	.....	39,217 40	.....	34,885 69	.....	66,967 75

November 1st, 1909, to October 31st, 1911.

Per Cent.	1911 March.	Per Cent.	1910 April.	Per Cent.	1911 April.	Per Cent.	1910 May.	No.
	$ c.		$ c.		$ c.		$ c.	
.....	86,649 45	.....	66,550 06	.....	55,874 48	.....	54,279 17	1
.....	45,209 39	.....	57,113 63	.....	51,067 69	.....	50,396 41	2
.....	564 61	.....	630 50	.....	525 92	.....	697 16	3
.....	149 95	.....	.....	.....	126 80	.....	.....	4
.....	1,408 10	.....	1,119 66	.....	1,292 68	.....	1,119 66	5
.....	3,038 57	.....	2,902 16	.....	3,447 62	.....	3 013 58	6
				.....	52 41			
.....	41 15	.....	3 36			.....	3 13	7
.....	.....	.....	.....	.....	.....	.....	.....	8
.....	238 81	.....	332 00	.....	279 00	.....	464 00	9
.....	25 00	.....	158 00	.....	.....	.....	.....	10
.....	.....	.....	.....	.....	255 46	.....	.....	11
.....	137,325 03	.....	128,809 37	.....	112,922 06	.....	109,973 11	
.....	266 66	.....	216 66	.....	266 66	.....	309 81	12
.....	.....	.....	.....	.....	.....	.....	.....	13
.....	124 51	.....	198 48	.....	68 19	.....	2 00	14
.....	64 80	.....	95 15	.....	67 50	.....	74 40	15
.....	501 99	.....	906 00	.....	262 75	.....	150 00	16
.....	4,005 66	.....	2,714 45	.....	2,713 47	.....	2,631 91	17
.....	990 28	.....	722 62	.....	1,717 37	.....	465 10	18
.....	20 77	.....	162 63	.....	165 31	.....	320 10	19
.....	5,974 67	.....	5,015 99	.....	5,261 25	.....	3,953 32	
.....	143,299 70	.....	133,825 36	.....	118,183 31	.....	113,926 43	
9.7	13,950 32	18.7	25,097 28	15.5	18,422 02	20.5	23,393 77	i.
11.1	16,036 33	11:1	14,917 88	12.1	14,401 85	9.5	10,735 11	ii.
1.1	1,442 71	.9	1,258 04	1.1	1,282 89	1.	1,551 25	iii.
32.9	47,149 82	32.1	42,846 51	32.9	38,792 45	37.	42,059 74	iv.
5.1	7,290 24	4.1	5,449 85	4.9	5,764 92	5.4	5,964 63	v.
59.9	85,869 42	66.9	89,569 56	66.5	78,664 13	73.4	83,704 50	
.....	57,430 28	.....	44,255 80	.....	39,519 18	.....	30,221 93	
.....	4,527 03	.....	.....	.....	.....	.....	.....	
.....	.....	.....	.....	.....	1,281 60	.....	.....	
.....	61,957 31	.....	44,255 80	.....	40,800 78	.....	30,221 93	
.....	1,590 11	.....	4,408 33	.....	.....	.....	879 10	
.....	330 64	.....	.....	.....	333 13	.....	237 05	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	60,036 56	.....	39,847 47	.....	40,467 65	.....	29,105 78	

Comparative Statement of Earnings and Expenses by

No.	RECEIPTS	Per Cent.	1911 May.	Per Cent.	1910 June.	Per Cent.	1911 June.
			$ c.		$ c.		$ c
	I. Revenue for transportation :						
1	Freight revenue	.....	53,084 69	.....	60,514 53	.....	58,101 19
2	Passenger revenue	.....	53,658 13	.....	46,391 00	.....	52,844 42
3	Excess baggage revenue	.....	573 37	.....	534 59	.....	683 11
4	Parlor and chair car revenue.	.....	156 20	.....	.....	.....	159 95
5	Mail revenue	.....	1,408 10	.....	1,119 66	.....	1,355 96
6	Express revenue	.....	3,189 15	.....	2,973 57	.....	4,083 34
7	Milk revenue (on passenger trains)	.....	46 88	.....	1 90	.....	44 00
8	Other passenger train revenue	.....	.....	.....	.....	.....	.....
9	Switching revenue	.....	338 87	.....	606 13	.....	335 30
10	Special service train revenue.	.....	25 00	.....	.....	.....	1,067 00
11	Miscellaneous Transportation Revenue	.....	135 38	.....	.....	.....	133 40
	Total	.....	112,615 77	.....	112,141 38	.....	118,807 67
	II. Revenue from operations other than transportation :						
12	Station and train privileges..	.....	266 66	.....	260 54	.....	2 0 97
13	Parcel room receipts	.....	.....	.....	.....	.....	.....
14	Storage—freight	.....	63 82	.....	182 60	.....	59 96
15	Storage—baggage	.....	81 00	.....	62 95	.....	109 70
16	Car service demurrage	.....	365 70	.....	399 50	.....	387 40
17	Telegraph and Telephone	.....	3,644 64	.....	2,519 04	.....	3,014 39
18	Rents of buildings and other property	.....	605 06	.....	799 27	.....	1,162 86
19	Miscellaneous	.....	1,715 24	.....	53 75	.....	34 84
	Total	.....	6,742 12	.....	4,277 65	.....	5,050 12
	Total Revenue	.....	119,357 89	.....	116,419 03	.....	123,857 79
	EXPENDITURES.						
i.	Maintenance of way and structures	27.4	32,714 93	29.8	34,683 68	39.7	49,132 39
ii.	Maintenance of equipment	11.1	13,258 27	10.9	12,645 51	10.	12,480 33
iii.	Traffic expenses	1.2	1,448 11	.9	1,108 11	2.2	2,708 66
iv.	Transportation expenses	33.5	40,063 70	35.6	41,466 83	31.5	39,083 80
v.	General expenses	5.1	6,009 97	7.	8,134 46	6.9	8,442 38
	Total operating expenses.	78.3	93,494 98	84.2	98,038 59	90.3	111,847 56
	Balance	.....	25,862 91	.....	18,380 44	.....	12,010 23
	Other income :						
	Ore royalties	.....	.....	.....	.....	.....	.....
	Hire of equipment	.....	1,869 40	.....	.....	.....	3,132 93
		.....	27,732 31	.....	18,380 44	.....	15,143 16
	Reductions from income :						
	Hire of equipment	.....	.....	.....	2,533 16	.....	.....
	Outside operations	.....	300 00	.....	484 43	.....	310 00
	Interest	.....	.....	.....	.....	.....	.....
	Net balance	.....	27,432 31	.....	15,362 85	.....	14,833 16

Months, November, 1st, 1909, to October 31st, 1911---Continued.

Per Cent.	1910 July.	Per Cent.	1911 July.	Per cent.	1910 August.	Per Cent.	1911 August.	No.
	$ c		$ c.		$ c.		$ c.	
.....	50,332 92	.....	68,694 55	.....	68,483 44	.....	97,121 77	1
.....	47,997 44	.....	71,671 64	.....	47,684 65	.....	73,901 14	2
.....	342 10	.....	508 01	.....	445 15	.....	606 21	3
.....	.....	.....	133 50	.....	.....	.....	180 30	4
.....	1,119 66	.....	1,412 56	.....	1,162 73	.....	1,466 67	5
.....	2,936 85	.....	3,834 20	.....	2,881 16	.....	6,769 78	6
.....	1 57	.....	31 80	.....	.....	.....	37 98	7
.....	.....	.....	.....	.....	.....	.....	.....	8
.....	550 99	.....	489 08	.....	600 94	.....	959 06	9
.....	324 00	.....	18 30	.....	.....	.....	50 00	10
.....	.....	.....	.....	.....	.....	.....	.....	11
.....	103,605 53	.....	146,793 64	.....	121,258 07	.....	181,092 91	
.....	177 17	.....	266 66	.....	216 66	.....	245 82	12
.....	18 40	.....	.....	.....	36 35	.....	.....	13
.....	93 49	.....	63 19	.....	78 77	.....	97 13	14
.....	86 40	.....	76 80	.....	66 77	.....	118 73	15
.....	555 40	.....	511 25	.....	583 00	.....	1,091 00	16
.....	2,881 23	.....	4,610 27	.....	2,246 83	.....	6,548 08	17
.....	741 60	.....	1,219 12	.....	2,495 85	.....	1,135 66	18
.....	35 90	.....	76 38	.....	86 77	.....	.....	19
.....	4,589 59	.....	6,823 67	.....	5,811 00	.....	9,236 42	
.....	108,195 12	.....	153,617 31	.....	127,069 07	.....	190,329 33	
36.9	39,992 15	33.9	52,165 66	37.1	47,218 19	25.3	48,047 31	i.
7.5	8,132 73	7.7	11,710 75	9.5	12,111 91	6.9	13,202 91	ii.
1.6	1,761 84	1.1	1,678 69	.6	776 29	.6	1,278 66	iii.
34.6	37,446 99	29.7	45,641 24	31.7	40,242 94	28.1	53,473 93	iv.
5.8	6,208 70	4.3	6,636 06	5.4	6,854 84	3.5	6,582 65	v.
86.4	93,542 41	76.7	117,832 40	84.3	107,204 17	64.4	122,585 46	
.....	14,652 71	.....	35,784 91	.....	19,864 90	.....	67,743 87	
.....	.....	.....	.....	.....	.....	.....	3,779 68	
.....	1,448 72	.....	.....	.....	.....	.....	.....	
.....	16,101 43	.....	35,784 91	.....	19,864 90	.....	71,523 55	
.....	.....	.....	592 17	.....	973 03	.....	4,223 74	
.....	.....	.....	300 00	.....	250 00	.....	.....	
.....	.....	.....	.....	.....	.....	.....	.....	
.....	16,101 43	.....	34,892 74	.....	18,641 87	.....	67,299 81	

Comparative Statement of Earnings and Expenses by

No.	RECEIPTS.	Per cent.	1910 September.	Per Cent.	1911 September.	Per cent.	1910 October.
			$ c.		$ c.		$ c.
	I. Revenue from transportation:						
1	Freight revenue	.....	60,777 77	.....	116,622 76	.....	56,151 14
2	Passenger revenue	.....	48,838 05	.....	68,241 70	.....	45,661 52
3	Excess baggage revenue	.....	467 00	.....	659 82	.....	540 85
4	Parlor and chair car revenue	.....	.....	.....	159 10	.....	.....
5	Mail revenue	.....	1,086 33	.....	1,412 05	.....	1,070 26
6	Express revenue	.....	3,058 06	.....	5,343 62	.....	2,988 31
7	Milk revenue (on passenger trains)	.....	.....	.....	28 95	.....	.....
8	Other passenger train revenue	.....	.....	.....	.....	.....	.....
9	Switching revenue	.....	362 00	.....	1,255 34	.....	292 00
10	Special service train revenue	.....	500 00	.....	506 00	.....	.....
11	Miscellaneous transportation revenue	.....	.....	.....	.....	.....	.....
	Total	.....	115,089 21	.....	194,229 34	.....	106,704 08
	II. Revenue from operations other than transportation:						
12	Station and train privileges	.....	216 66	.....	245 82	.....	243 22
13	Parcel room receipts	.....	16 60	.....	.....	.....	149 70
14	Storage—freight	.....	147 20	.....	42 58	.....	126 58
15	Storage—baggage	.....	66 40	.....	99 95	.....	53 55
16	Car service demurrage	.....	395 90	.....	1,127 97	.....	429 38
17	Telegraph and telephone	.....	2,508 04	.....	3,525 39	.....	2,654 07
18	Rents of buildings and other property	.....	596 98	.....	1,014 79	.....	758 61
19	Miscellaneous	.....	35 91	.....	31 45	.....	414 54
	Total	.....	3,982 79	.....	6,087 95	.....	4,829 65
	Total Revenue	.....	119,072 00	.....	200,317 29	.....	111,533 73
	EXPENDITURES.						
i.	Maintenance of way and structures	40.6	48,319 42	19.2	38,462 26	27.3	30,157 78
ii.	Maintenance of equipment	7.	8,366 96	7.2	14,306 08	8.6	9,637 16
iii.	Traffic expenses	.9	1,074 01	.7	1,527 88	1.2	1,422 62
iv.	Transportation expenses	32.2	38,324 90	28.8	57,780 55	33.9	37,910 84
v.	General expenses	5.8	6,890 20	3.5	7,035 79	5.2	5,884 74
	Total operating expenses.	86.5	102,975 49	59.4	119,112 56	76.2	85,013 14
	Balance	.....	16,096 51	.....	81,204 73	.....	26,520 59
	Other income:						
	Ore royalties	.....	.....	.....	.....	.....	18,504 04
	Hire of equipment	.....	5,876 05	.....	.....	.....	7,474 07
		.....	21,972 56	.....	81,204 73	.....	52,498 70
	Reductions from income:						
	Hire of equipment	.....	.....	.....	5,389 80	.....	.....
	Outside operations	.....	368 43	.....	.....	.....	300 00
	Interest	.....	.....	.....	.....	.....	909 47
	Net balance	.....	21,604 13	.....	75,814 93	.....	51,289 23

Months, November 1st, 1909, to October 31st, 1911.---Continued.

Per Cent.	1911 October.	Per Cent.	1910 Total.	Per Cent.	1911 Total.	Increase.	Decrease.	Net Increase.	No.
	$ c		$ c.		$ c.	$ c.	$ c.	$ c.	
.....	130,788 38	.....	852,886 46	.....	974,678 33	121,791 87	.....	.....	1
.....	65,314 86	.....	606,967 91	.....	653,063 01	46,095 10	.....	.....	2
.....	733 15	.....	6,197 50	.....	6,758 44	560 94	.....	.....	3
.....	138 60	.....	.....	.....	1,578 30	1,578 30	.....	.....	4
.....	1,412 32	.....	13,295 58	.....	15,980 59	2,685 01	.....	.....	5
.....	5,086 76	.....	36,177 46	.....	47,557 44	11,379 98	.....	.....	6
.....	21 56	.....	23 67	.....	449 48	425 81	.....	.....	7
.....	.....	.....	.....	.....	.....	.....	.....	.....	8
.....	1,400 70	.....	4,704 47	.....	5,356 57	652 10	.....	.....	9
.....	.....	.....	1,767 00	.....	1,691 30	.....	75 70	.....	10
.....	.....	.....	.....	.....	1,135 56	1,135 56	.....	.....	11
.....	204,896 33	.....	1,522,020 05	.....	1,708,249 02	186,304 67	75 70	186,228 97	
.....	526 12	.....	2,751 43	.....	3,432 01	680 58	.....	.....	12
.....	.....	.....	221 05	.....	.....	.....	221 05	.....	13
.....	103 77	.....	2,368 27	.....	987 78	.....	1,380 49	.....	14
.....	110 85	.....	1,012 32	.....	986 33	.....	25 99	.....	15
.....	1,916 65	.....	13,980 03	.....	7,262 36	.....	6,717 67	.....	16
.....	3,387 47	.....	34,778 88	.....	43,182 19	8,403 31	.....	.....	17
.....	1,337 36	.....	12,585 36	.....	14,693 93	2,108 57	.....	.....	18
.....	40 28	.....	2,134 63	.....	2,171 21	36 58	.....	.....	19
.....	7,422 50	.....	69,831 97	.....	72,715 81	11,229 04	8,345 20	2,883 84	
.....	212,318 83	.....	1,591,852 02	.....	1,780,964 83	197,533 71	8,420 90	189,112 81	
13.4	28,429 47	23.9	380,314 75	19.9	353,918 92	.....	26,395 83	.....	i.
8.1	17,367 82	8.6	137,340 46	9.2	164,145 69	26,805 23	.....	.....	ii.
.5	1,201 99	.9	14,920 04	1.	17,705 31	2,785 27	.....	.....	iii.
26.1	55,450 95	34.9	556,740 45	31.9	567,316 97	10,576 52	.....	.....	iv.
3.	6,133 42	4.9	76,045 66	4.4	78,911 74	2,866 08	.....	.....	v.
51.1	108,583 65	73.2	1,165,361 36	66.4	1,181,998 63	43,033 10	26,395 83	16,637 27	
.....	103,735 18	.....	426,490 66	.....	598,966 20	154,500 61	17,974 93	172,475 54	
.....	889 87	.....	31,762 92	.....	17,060 56	.....	14,702 36	.....	
.....	.....	.....	14,798 84	.....	6,283,93	.....	8,514 91	.....	
.....	104,625 05	.....	473,052 42	.....	622,310 69	154,500 61	5,242 34	149,258 27	
.....	3,684 60	.....	34,372 73	.....	25,364 69	.....	9,008 04	.....	
.....	610 00	.....	1,639 91	.....	3,793 31	2,153 40	.....	.....	
.....	.....	.....	909 47	.....	.....	.....	909 47	.....	
.....	100,330 45	.....	436,130 31	.....	593,152 69	152,347 21	4,675 17	157,022 38	

Comparative Statement of Expenses by Months, November 1st

	Maintenance of Way and Structures.	1909 November.	1910 November.	1909 December.	1910 December
		$ c.	$ c.	$ c.	$ c.
1	Superintendence	589 24	1,291 02	714 83	1,180 65
2	Ballast	42 46	29 70	824 56	39 57
3	Ties	6,956 75	439 66	2,452 19	Cr. 945 22
4	Rails	320 58	3,396 19	4,778 53	1,307 33
5	Other Track Material	400 95	620 34	2,623 94	1,119 88
6	Roadway and Track	18,099 81	8,402 72	11,220 38	4,683 67
7	Removal of Snow, Sand and Ice	394 61	1,555 19	3,060 11	3,843 08
8	Tunnels				
9	Bridges, Trestles and Culverts	2,465 52	676 56	1,500 22	1,184 94
10	Over and Under Grade Crossings				
11	Grade Crossings, Fences, Cattle Guards and Signs	517 09	99 77	445 00	49 39
12	Snow and Sand Fences and Snow sheds	32 80		5 44	
13	Signals and Interlocking Plants		28		06
14	Telegraph and Telephone Lines	1,321 39	114 53	2,946 54	308 28
15	Electric Power Transmission		214 20	110 00	
16	Buildings, Fixtures and Grounds	5,708 02	2,736 14	11,725 22	2,444 15
17	Docks and Wharves				
18	Roadway Tools and Supplies	315 50	347 38	298 46	348 09
19	Injuries to Persons	25 00			
20	Stationery and Printing	74 37	27 78	92 91	34 90
21	Other Expenses				
22	Maintaining Joint Tracks and other facilities—Dr				
23	Maintaining Joint Tracks and other facilities—Cr				
	Totals	37,264 09	19,951 46	42,798 33	15,598 77
	Maintenance of Equipment.				
24	Superintendence	869 02	733 83	836 43	765 10
25	Steam Locomotives—Repairs	5,213 67	5,310 49	5,379 70	6,675 62
26	" " Renewals				
27	" " Depreciation				
28	Electric Locomotives—Repairs				
29	" " Renewals				
30	" " Depreciation				
31	Passenger Train Cars—Repairs	1,651 21	2,485 87	2,171 66	2,250 09
32	" " " Renewals				
33	" " " Depreciation				
34	Freight Train Cars—Repairs	2,690 77	1,742 29	2,012 74	1,572 76
35	" " " Renewals				Cr. 461 43
36	" " " Depreciation				
37	Electric Equipment of Cars.Repairs				
38	" " " Renewals				
39	" " Depreciation				
40	Floating Equipment—Repairs				
41	" " Renewals				
42	" " Depreciation				
43	Work Equipment—Repairs	161 10	937 68	255 05	837 54
44	" " Renewals				
45	" " Depreciation				
46	Shop Machinery and Tools	319 15	414 23	492 94	547 28
47	Power Plant Equipment	59 21		371 38	
48	Injuries to Persons				
49	Stationery and Printing	97 25	30 50	47 91	30 60
50	Other Expenses	Cr. 645 33	7 60	Cr. 645 35	Cr. 5 90
51	Maintaining Joint Equipment at Terminals—Dr				
52	Maintaining Joint Equipment at Terminals—Cr				
	Totals	10,416 05	11,662 49	10,922 46	12,211 66

1909, to October 31st, 1911.---Continued.

1910 January.	1911 January.	1910 February.	1911 February.	1910 March.	1911 March.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
867 32	1,036 09	808 47	917 86	860 77	1,110 90	1
178 97	72 81	74 10	126 61	99 63	158 77	2
10 21	Cr. 345 05	23 00	.....	Cr. 8 32	.....	3
6,833 98	136 96	.....	118 66	283 38	221 09	4
573 49	1,411 18	733 02	477 04	767 46	1,014 23	5
4,769 17	5,002 76	8,079 84	5,393 61	9,980 08	6,596 79	6
5,201 45	7,071 09	4,471 53	6,283 56	1,731 95	2,199 86	7
.....	.....	.....	.....	.....	.....	8
274 10	1,849 90	363 89	2,014 26	515 36	764 51	9
6 00	.....	Cr. 1,294 89	.....	.....	.....	10
13 95	24 20	117 77	1 63	129 98	Cr. 12 97	11
.....	58 63	.....	19 79	.....	.....	12
.....	.....	20	.....	.....	90	13
375 39	123 23	357 12	410 24	627 20	487 23	14
45 40	234 15	276 00	.....	Cr. 11 50	.....	15
1,384 82	2,079 97	Cr. 408 68	2,374 16	682 42	1,470 33	16
.....	.....	.....	.....	.....	.....	17
553 34	47 55	280 34	11 72	370 66	Cr. 101 77	18
25 00	.....	.....	.....	62 50	.....	19
73 09	38 43	70 24	53 29	61 56	40 45	20
38 78	.....	37 53	.....	22 99	.....	21
.....	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	23
21,224 46	18,841 90	13,989 48	18,202 43	16,176 12	13,950 32	
836 95	684 90	916 70	947 44	894 68	761 20	24
6,263 45	7,183 74	4,744 96	5,774 54	7,491 04	7,589 51	25
.....	.....	.....	.....	.....	.....	26
.....	.....	.....	.....	.....	.....	27
.....	.....	.....	.....	.....	.....	28
.....	.....	.....	.....	.....	.....	29
.....	.....	.....	.....	.....	.....	30
2,340 37	2,506 25	2,374 18	3,212 64	1,926 25	3,030 45	31
.....	.....	.....	.....	.....	.....	32
.....	.....	.....	.....	.....	.....	33
2,606 80	2,131 18	1,634 33	1,668 75	2,544 74	2,611 81	34
.....	.....	.....	.....	.....	.....	35
.....	.....	.....	.....	.....	.....	36
.....	.....	.....	.....	.....	.....	37
.....	.....	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	42
584 17	742 79	1,299 56	1,756 48	1,147 54	1,746 36	43
.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	45
447 67	382 30	476 04	437 24	341 21	283 22	46
131 19	.....	74 82	.....	91 82	.....	47
25 00	.....	.....	.....	62 50	.....	48
65 53	54 22	40 29	50 28	92 90	74 88	49
.....	Cr. 41 40	.....	15 85	.....	Cr. 61 10	50
.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	52
13,301 13	13,643 98	11,560 88	13,863 22	14,592 68	16,036 33	

Comparative Statement of Expenses by Months,

	Maintenance of Way and Structures.	1910 April.	1911 April.	1910 May.	1911 May.
		$ c.	$ c.	$ c.	$ c.
1	Superintendence	167 20	1,358 98	951 24	1,603 30
2	Ballast	1,827 77	386 96	1,329 60	2,351 28
3	Ties	3,114 81	1,632 60	1,274 97	3,616 36
4	Rails	416 95	312 64	488 57	2 849 46
5	Other Track Material	1,192 88	482 16	1,967 69	153 80
6	Roadway and Track	12,765 23	9.413 92	12,872 10	14,559 92
7	Removal of Snow, Sand and Ice	7 56	83 16	Cr. 54 45	17 22
8	Tunnels				
9	Bridges, Trestles and Culverts	1,507 19	1,567 71	624 18	876 82
10	Over and Under Grade Crossings	947 33			
11	Grade Crossings, Fences, Cattle Guards and Signs	269 57	75 90	305 56	1,070 36
12	Snow and Sand Fences and Snowshed				
13	Signals and Interlocking Plants	64	1 52		
14	Telegraph and Telephones Lines	565 14	524 92	309 12	363 13
15	Electric Power Transmission	Cr. 3 30		135 41	
16	Buildings, Fixtures and Grounds	1,556 48	1,961 13	2,588 95	4,087 25
17	Docks and Wharves				
18	Roadway Tools and Supplies	683 19	574 09	499 39	950 02
19	Injuries to Persons				12 50
20	Stationery and Printing	69 44	46 33	101 44	203 51
21	Other Expenses	9 20			
22	Maintaining Joint Tracks and other facilities—Dr.				
23	Maintaining Joint Tracks and other facilities—Cr.				
	Totals	25,097 28	18,422 02	23,393 77	32,714 93
	Maintenance of Equipment.				
24	Superintendence	812 61	762 11	1,024 47	794 24
25	Steam Locomotives—Repairs	6,054 95	6,188 97	5,022 26	5,113 26
26	" " Renewals				
27	" " Depreciation				
28	Electric Locomotives—Repairs				
29	" " Renewals				
30	" " Depreciation				
31	Passenger Train Cars—Repairs	1,546 31	2,700 25	986 86	3,228 90
32	" " " Renewals				
33	" " " Depreciation				
34	Freight Train Cars—Repairs	2,245 67	1,535 72	1,389 30	1,326 02
35	" " " Renewals		60 00		
36	" " " Depreciation				
37	Electric Equipment of Cars—Repairs				
38	" " " Renewals				
39	" " " Depreciation				
40	Floating Equipment—Repairs				
41	" " Renewals				
42	" " Depreciation				
43	Work Equipment—Repairs	3,628 75	2,914 14	2,021,09	2,339 06
44	" " Renewals				
45	" " Depreciation				
46	Shop Machinery and Tools	366 91	369 09	333 18	433 37
47	Power Plant Equipment	63 16		7 45	
48	Injuries to Persons				12 50
49	Stationery and Printing	198 02	98 82	83 07	83 33
50	Other Expenses	1 50	Cr. 227 25	Cr. 132 57	Cr. 72 41
51	Maintaining Joint Equipment at Terminals—Dr.				
52	Maintaining Joint Equipment at Terminals—Cr.				
	Totals	14,917 88	14,401 85	10,735 11	13.258 27

November 1st, 1909, to October 31st, 1911.

1910 June.	1911 June.	1910 July.	1911 July.	1910 August.	1911 August.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
1,015 56	1,972 06	1,252 26	1,682 31	1,345 34	2,057 83	1
2,104 65	6,479 52	4,220 62	5,141 18	3,529,93	5,141 40	2
9,309 84	6,321 25	7,224 65	10,101 38	8,220 70	5,841 02	3
Cr. 2,935 81	3,874 92	525 99	25 62	598 30	874 00	4
Cr. 1 69	83 90	12 40	332 41	42 80	Cr. 157 14	5
21,588 03	20,770 68	18,554 98	24,726 77	27,125 65	26,838 05	6
.....	.....	.....	84 25	.....	.....	7
.....	.....	.....	.....	.....	.....	8
467 57	3,062 86	2,213 27	2,810 91	2,990 04	1,799 03	9
.....	8 35	383 03	.....	.....	.....	10
36 98	869 46	180 10	1,774 65	469 29	663 53	11
.....	.....	.....	.....	.....	.....	12
.....	.....	.....	.....	.....	1 23	13
428 25	405 18	410 47	542 83	424 69	590 42	14
Cr. 1 40	.....	Cr. 1 70	.....	.....	.....	15
2,012 05	4,535 34	3,258 00	4,358 39	2,120 39	4,000 44	16
.....	.....	.....	.....	.....	.....	17
584 25	740 59	1,088 03	410 52	323 69	365 89	18
.....	.....	678 80	98 00	.....	.....	19
75 40	8 28	Cr. 8 75	26 44	27 37	31 61	20
.....	.....	.....	50 00	.....	.....	21
.....	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	23
34,683 68	49,132 39	39,992 15	52,165 66	47,218 19	48,047 31	
929 65	926 61	855 50	898 71	959 56	1,002 21	24
5,685 03	5,459 41	6,157 93	5,641 93	5,266 28	6,132 75	25
.....	.....	.....	.....	.....	.....	26
.....	.....	.....	.....	.....	.....	27
.....	.....	.....	.....	.....	.....	28
.....	.....	.....	.....	.....	.....	29
.....	.....	.....	.....	.....	.....	30
1,520 67	2,171 64	1,957 83	2,157 63	1,773 60	2,639 50	31
.....	.....	Cr. 3,490 24	.....	.....	.....	32
.....	.....	.....	.....	.....	.....	33
2,035 19	1,290 07	2,266 04	1,502 08	1,427 82	1,645 75	34
.....	.....	Cr. 1,801 56	.....	.....	.....	35
.....	.....	.....	.....	.....	.....	36
.....	.....	.....	.....	.....	.....	37
.....	.....	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	42
1,895 55	1,690 63	1,506 15	988 23	2,051 23	1,072 21	43
.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	35
494 04	772 69	519 75	412 44	515 92	598 28	36
8 81	.....	70 12	.....	86 64	.....	37
.....	.....	.....	2 63	.....	.....	48
76 57	50 39	91 21	49 81	34 46	77 11	49
.....	118 89	.....	57 29	Cr. 3 60	35 10	50
.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	52
12,645 51	12,480 33	8,132 73	11,710 75	12,111 91	13,202 91	

Comparative Statement of Expenses by Months,

	Maintenance of Way and Structures.	1910 September.	1911 September.	1910 October.	1911 October.
		$ c.	$ c.	$ c.	$ c.
1	Superintendence	1,547 73	1,784 60	1,592 91	1,770 65
2	Ballast	434 18	4,061 09	752 85	1,212 30
3	Ties	7,593 91	3,493 85	4,942 81	2,499 92
4	Rails	926 74	260 08	3,934 80	52 77
5	Other Track Material	Cr. 293 75	377 30	211 17	147 70
6	Roadway and Track	32,597 20	22,204 89	15,493 43	15,991 88
7	Removal of Snow, Sand and Ice				
8	Tunnels				
9	Bridges, Trestles and Culverts	2,177 85	1,285 80	1,061 19	796 77
10	Over and Under Grade Crossings				
11	Grade Crossings, Fences, Cattle Guards and Signs	573 38	712 32	21 49	947 88
12	Snow and Sand Fences and Snowsheds				
13	Signals and Interlocking Plants				14 15
14	Telegraph and Telephone Lines	332 27	494 63	437 67	846 89
15	Electric Power Transmission	50 85			
16	Buildings, Fixtures and Grounds	2,045 45	3,541 03	1,376 81	3,722 44
17	Docks and Wharves				
18	Roadway, Tools and Supplies	310 31	224 82	311 09	426 12
19	Injuries to Persons				
20	Stationery and Printing	23 30	21 85	21 56	
21	Other Expenses				
22	Maintaining Joint Tracks and other Facilities—Dr.				
23	Maintaining Joint Tracks and other Facilities—Cr.				
	Totals	48,319 42	38,462 26	30,157 78	28,429 47
	Maintenance of Equipment.				
24	Superintendence	851 26	924 45	1,054,77	1,137 97
25	Steam Locomotive—Repairs	4,438 16	6,833 67	4,193 92	7,666 38
26	" " Renewals				
27	" " Depreciation				
28	Electric Locomotive—Repairs				
29	" " Renewals				
30	" " Depreciation				
31	Passenger Train Cars—Repairs	1,255 61	3,025 72	2,388 50	3,696 16
32	" " " Renewals				
33	" " " Depreciation				
34	Freight Train Cars—Repairs	1,341 96	2,099 19	645 62	2,646 43
35	" " " Renewals	Cr. 221 28			
36	" " " Depreciation				
37	Electric Equipment of Cars—Repairs				8.70
38	" " " Renewals				
39	" " " Depreciation				
40	Floating Equipment—Repairs				
41	" " Renewals				
42	" " Depreciation				
43	Work Equipment—Repairs	428 11	882 61	929 26	1,456 29
44	" " Renewals				
45	" " Depreciation				
46	Shop Machinery and Tools	269 47	496 84	353 99	658 85
47	Power Plant Equipment	38 24		23 97	
48	Injuries to Persons				
49	Stationery and Printing	16 28	36 80	45 03	84 62
50	Other Expenses	Cr. 50 85	6 80	2 10	12 42
51	Maintaining Joint Equipment at Terminals—Dr.				
52	Maintaining Joint Equipment at Terminals—Cr.				
	Totals	8,366 96	14,306 08	9,637 16	17,367 82

November 1st, 1909, to October 31st, 1911.

1910 Total.	1911 Total.	Increase.	Decrease.	Net Increase.	Net Decrease.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
11,712 87	17,766 25	6,053 38	.....	.....	.....	1
15,419 32	25,201 19	9,781 87	.....	.....	.....	2
51,115 52	32,655 77	.....	18,459 75	.....	.....	3
16,172 01	13,429 72	.....	2,742 29	.....	.....	4
8,230 36	6,062 80	.....	2,167 56	.....	.....	5
193,145 90	164,585 66	.....	28,560 24	.....	.....	6
14,812 76	21,137 41	6,324 65	.....	.....	.....	7
.....	.....	.....	.....	.....	.....	8
16,160 38	18,690 07	2,529 69	.....	.....	.....	9
41 47	8 35	.....	33 12	.....	.....	10
3,080 16	6,276 12	3,195 96	.....	.....	.....	11
38 24	78 42	40 18	.....	.....	.....	12
84	18 14	17 30	.....	.....	.....	13
8,535 25	5,211 51	.....	3,323 74	.....	.....	14
599 76	448 35	.....	151 41	.....	.....	15
34,049 93	37,310 77	3,260 84	.....	.....	.....	16
.....	.....	.....	.....	.....	.....	17
5,618 25	4,345 02	.....	1,273 23	.....	.....	18
791 30	110 50	.....	680 80	.....	.....	19
681 93	532 87	.....	149 06	.....	.....	20
108 50	50 00	.....	58 50	.....	.....	21
.....	.....	.....	.....	.....	.....	22
.....	.....	.....	.....	.....	.....	23
380,314 75	353,918 92	31,203 87	57,599 70	.....	26,395 83	
10,841 60	10,338 77	.....	502 83	.....	.....	24
65,911 35	75,570 27	9,658 92	.....	.....	.....	25
.....	.....	.....	.....	.....	.....	26
.....	.....	.....	.....	.....	.....	27
.....	.....	.....	.....	.....	.....	28
.....	.....	.....	.....	.....	.....	29
.....	.....	.....	.....	.....	.....	30
21,893 05	33,105 10	11,212 05	.....	.....	.....	31
Cr. 3,490 24	.....	3,490 24	.....	.....	.....	32
.....	.....	.....	.....	.....	.....	33
22,840 98	21,772 05	.....	1,068 93	.....	.....	34
Cr. 2,022 84	Cr. 401 43	1,621 41	.....	.....	.....	35
.....	.....	.....	.....	.....	.....	36
.....	8 70	8 70	.....	.....	.....	37
.....	.....	.....	.....	.....	.....	38
.....	.....	.....	.....	.....	.....	39
.....	.....	.....	.....	.....	.....	40
.....	.....	.....	.....	.....	.....	41
.....	.....	.....	.....	.....	.....	42
15,907 56	17,364 02	1,456 46	.....	.....	.....	43
.....	.....	.....	.....	.....	.....	44
.....	.....	.....	.....	.....	.....	45
4,930 27	5,805 83	875 56	.....	.....	.....	46
1,026 81	.....	.....	1,026 81	.....	.....	47
87 50	15 13	.....	72 37	.....	.....	48
888 52	721 36	.....	167 16	.....	.....	49
Cr. 1,474 10	Cr. 154 11	1,319 99	.....	.....	.....	50
.....	.....	.....	.....	.....	.....	51
.....	.....	.....	.....	.....	.....	52
137,340 46	164,145 69	29,643 33	2,838 10	26,805 23	.....	

Comparative Statement of Expenses by Months, November 1st, 1909,

No.	Traffic Expenses.	1909 November.	1910 November.	1909 December.	1910 December.
		$ c.	$ c.	$ c.	$ c.
53	Superintendence	940 52	709 49	579 74	739 57
54	Outside Agencies	.....	12 99	.....	3 32
55	Advertising	200 00	153 00	215 00	404 74
56	Traffic Associations	.....	.....	.....	.....
57	Fast Freight Lines	.....	.....	.....	.....
58	Industrial and Immigration Bureaus	.....	98 00	.....	106 12
59	Stationery and Printing	142 02	148 40	13 88	203 10
60	Other Expenses	.....	.....	.....	.....
	Totals	1,282 54	1,121 88	808 62	1,456 85
	Transportation Expenses.				
61	Superintendence	637 00	850 37	906 01	855 00
62	Despatching Trains	503 80	733 33	166 76	719 85
63	Station Employees	5,916 16	5,910 26	6,106 16	6,606 16
64	Weighing and Car Service Associations	21 28	15 97	25 17	16 28
65	Coal and Ore Docks	.....	.....	.....	.....
66	Station Supplies and Expenses	1,776 15	1,087 23	2,250 26	1,341 67
67	Yardmasters and their Clerks	196 50	200 00	150 00	200 00
68	Yard Conductors and Brakemen	1,714 81	1,235 15	1,547 86	1,346 38
69	Yard Switch and Signal Tenders	167 89	16 17	44 97	68 47
70	Yard Supplies and Expenses	66 77	13 49	250 42	Cr. 57 88
71	Yard Enginemen	1,010 32	634 35	1,071 65	823 04
72	Engine-house Expenses—Yard	89 45	273 04	127 68	339 91
73	Fuel for Yard Locomotives	2,976 33	1,143 60	3,199 43	1,799 38
74	Water for Yard Locomotives	54 25	78 71	93 19	113 80
75	Lubricants for Yard Locomotives	36 67	29 91	52 40	Cr. 46 30
76	Other Supplies for Yard Locomotives	55 54	14 79	29 89	Cr. 2 29
77	Operating Joint Yards and Terminals —Dr.	3,271 40	1,988 90	2,986 77	2,425 77
78	Operating Joint Yards and Terminals —Cr.	.....	.....	.....	.....
79	Motormen	.....	.....	.....	.....
80	Road Enginemen	5,988 74	3,734 96	5,810 58	4,718 31
81	Engine-house Expenses—Road	1,333 12	1,142 35	1,407 92	1,341 44
82	Fuel for Road Locomotives	19,417 47	11,981 07	18,001 38	15,678 97
83	Water for Road Locomotives	779 96	692 56	940 08	790 33
84	Lubricants for Road Locomotives	298 13	211 62	491 61	243 60
85	Other Supplies for Road Locomotives	203 80	94 42	294 93	Cr. 10 85
86	Operating Power Plants	.....	.....	.....	.....
87	Purchased Power	.....	.....	.....	.....
88	Road Trainmen	5,757 38	4,721 56	5,463 55	5,809 67
89	Train Supplies and Expenses	1,243 31	1,238 79	2,466 49	1,150 44
90	Interlockers, Block and other Signals—Operations	.....	.....	.....	.....
91	Crossing, Flagmen and Gatemen	.....	.....	.....	.....
92	Drawbridge Operation	.....	.....	.....	.....
93	Clearing Wrecks	903 66	Cr. 19 15	694 77	155 31
94	Telegraph and Telephone—Operation	1,891 23	10 55	1,733 27	7 81
95	Operating Floating Equipment	.....	.....	.....	.....
96	Express Service	.....	.....	.....	.....
97	Stationery and Printing	1,069 92	440 40	1,177 81	855 16
98	Other Expenses	.....	500 00	.....	.....
99	Loss and Damage—Freight	123 40	18 73	137 03	Cr. 66 29
100	Loss and Damage—Baggage	Cr. 5 00	41	92 00	.....
101	Damage to Property	6 07	50 00	.....	.....
102	Damage to Stock on Right of Way	50 00	.....	122 00	55 00
103	Injuries to Persons	2,565 00	.....	176 00	.....
104	Operating Joint Tracks—Dr.	.....	.....	.....	.....
105	Operating Joint Tracks—Cr.	.....	.....	.....	.....
	Totals	36,537 29	39,043 54	58,018 04	47,278 14

to October 31st, 1911---Continued.

1910 January.	1911 January.	1910 February.	1911 February.	1910 March.	1911 March.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
728 16	798 22	677 78	732 83	693 27	752 57	53
25 88	10 85	2 24	4 25	15 30	2 98	54
140 00	90 79	592 98	273 50	734 40	333 00	55
.....	5 00	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	57
.....	104 22	.....	101 32	.....	103 75	58
.....	198 11	153 80	237 90	98 12	250 41	59
14 79	.....	.....	.....	.....	.....	60
908 83	1,207 19	1,426 80	1,349 80	1,541 09	1,442 71	
824 46	1,003 80	925 31	890 47	958 67	919 36	61
459 26	712 25	463 34	706 58	399 11	717 62	62
6,274 87	6,398 55	5,914 24	6,530 01	5,654 20	6,410 58	63
32 00	40 43	27 40	21 86	22 44	21 06	64
.....	.....	.....	.....	.....	15 00	65
1,579 35	1,233 85	1,124 53	1,145 58	1,157 25	991 64	66
171 00	200 00	213 00	202 50	215 00	211 53	67
1,707 70	1,450 65	1,149 35	1,306 34	1,477 53	1,398 92	68
251 07	46 20	203 44	74 41	341 71	58 42	69
59 57	39 60	54 83	36 84	62 21	24 64	70
1,015 03	917 01	740 07	842 97	958 43	853 93	71
176 29	339 59	168 85	345 59	265 32	402 70	72
2,307 62	1,978 34	2,449 69	1,867 62	1,836 58	1,807 70	73
83 23	166 44	102 96	111 70	117 78	72 13	74
68 85	39 26	59 64	23 18	48 29	49 06	75
25 72	15 20	16 92	11 67	22 02	12 36	76
2,752 82	2,419 20	2,334 11	2,268 75	2,267 59	2,926 26	77
.....	.....	.....	.....	.....	.....	78
.....	.....	.....	.....	.....	.....	79
5,026 50	5,441 87	4,504 93	4,518 83	4,974 48	5,154 59	80
1,578 57	1,582 49	1,538 35	1,474 89	1,898 67	1,681 81	81
19,798 63	22,887 10	17,721 71	14,681 66	17,182 85	13,990 09	82
772 30	1,150 84	936 25	845 30	1,001 57	707 89	83
410 68	101 64	305 14	44 81	323 64	69 58	84
238 31	127 47	202 79	106 33	97 82	124 21	85
.....	.....	.....	.....	.....	.....	86
.....	.....	.....	.....	.....	.....	87
5,313 44	6,241 58	4,657 66	5,225 58	4,932 99	5,819 90	88
1,861 10	1,590 15	1,688 39	1,887 88	1,442 19	1,533 28	89
.....	.....	.....	.....	.....	.....	90
.....	.....	.....	.....	.....	.....	91
.....	.....	.....	.....	.....	.....	92
272 69	11 43	563 11	188 21	428 61	88 35	93
1,925 36	31 93	1,784 51	17 54	1,761 78	4 71	94
.....	.....	.....	.....	.....	.....	95
.....	.....	.....	.....	.....	.....	96
973 16	590 07	1,022 51	867 40	614 86	792 22	97
.....	.....	.....	11 20	.....	7 04	98
128 10	110 43	98 14	389 96	184 71	174 24	99
115 00	40 00	.....	82	.....	.....	100
.....	.....	.....	.....	.....	.....	101
25 00	5 00	60 00	.....	.....	105 00	102
50 00	.....	205 00	.....	141 00	4 00	103
.....	.....	.....	.....	.....	.....	104
.....	.....	.....	.....	.....	.....	105
56,277 68	56,912 37	51,236 17	46,646 48	50,789 30	47,149 82	

Comparative Statement of Expenses by Months, November 1st,

	Traffic Expenses.	1910 April.	1911 April.	1910 May.	1911 May.
		$ c.	$ c.	$ c.	$ c.
53	Superintendence	748 83	740 92	701 41	731 02
54	Outside Agencies	7 21	3 84	3 04	.....
55	Advertising	329 30	261 37	747 59	503 63
56	Traffic Associations	.....	.....	.....	.....
57	Fast Freight Lines	.....	.....	.....	.....
58	Industrial and Immigration Bureaus	.....	135 84	.....	110 28
59	Stationery and Printing	172 70	140 92	99 21	103 18
60	Other Expenses	.....	.....	.....	.....
	Total	1,258 04	1,282 89	1,551 25	1,448 11
	Transportation Expenses.				
61	Superintendence	857 20	1,030 21	708 97	918 35
62	Despatching Trains	414 32	713 46	773 34	964 51
63	Station Employees	5,532 61	6,108 46	6,305 79	6,058 45
64	Weighing and Car Service Associations	23 87	19 98	22 02	16 95
65	Coal and Ore Docks	.....	.....	.....	.....
66	Station Supplies and Expenses	1,007 69	849 38	518 75	521 48
67	Yardmasters and their Clerks	215 00	206 50	229 99	207 82
68	Yard Conductors and Brakemen	1,098 59	1,158 56	987 85	1,221 74
69	Yard Switch and Signal Tenders	376 14	84 99	303 90	75 36
70	Yard Supplies and Expenses	65 60	30 72	49 78	12 33
71	Yard Enginemen	759 32	806 11	744 47	771 10
72	Engine-house Expenses—Yard	110 93	366 31	113 75	361 45
73	Fuel for Yard Locomotives	1,678 50	1,568 22	1,496 15	1,540 15
74	Water for Yard Locomotives	77 11	54 48	62 70	207 19
75	Lubricants for Yard Locomotives	46 10	41 76	41 80	38 07
76	Other Supplies for Yard Locomotives	Cr. 175 40	22 39	16 21	17 55
77	Operating Joint Yards and Terminals —Dr	2,563 53	2,241 56	2,589 73	2,332 06
78	Operating Joint Yards and Terminals —Cr	.....	.....	.....	.....
79	Motormen	.....	.....	.....	.....
80	Road Enginemen	3,992 48	3,911 56	3,914 16	3,864 46
81	Engine-house Expenses—Road	1,168 88	1,486 95	1,259 74	1,442 89
82	Fuel for Road Locomotives	13,769 94	10,103 59	13,471 31	10,549 88
83	Water for Road Locomotives	873 19	678 68	707 74	1,117 84
84	Lubricants for Road Locomotives	240 81	14 37	244 70	219 76
85	Other Supplies for Road Locomotives	84 00	101 99	87 14	104 70
86	Operating Power Plants	.....	.....	168 63	.....
87	Purchased Power	.....	.....	.....	.....
88	Road Trainmen	4,109 86	4,499 16	4,168 81	4,278 94
89	Train Supplies and Expenses	1,034 23	1,073 30	1,031 28	1,524 75
90	Interlockers, Block and other Signals—Operations	.....	.....	.....	.....
91	Crossing, Flagmen and Gatemen	.....	.....	.....	.....
92	Drawbridge Operation	.....	.....	.....	.....
93	Clearing Wrecks	208 80	7 92	1,223 82	427 86
94	Telegraph and Telephone—Operation	1,605 01	23 56	3 54	163 83
95	Operating Floating Equipment	.....	.....	.....	.....
96	Express Service	.....	.....	.....	.....
97	Stationery and Printing	964 12	1,331 77	892 63	862 50
98	Other Expenses	.....	.....	.....	13 50
99	Loss and Damage—Freight	100 08	133 41	Cr. 236 59	126 75
100	Loss and Damage—Baggage	44 00	83 10	Cr. 96 87	41 48
101	Damage to Property	.....	.....	.....	.....
102	Damage to Stock on Right of Way	.....	.....	.....	35 00
103	Injuries to Persons	.....	.....	254 50	25 00
104	Operating Joint Tracks—Dr	.....	40 00	.....	.....
105	Operating Joint Tracks—Cr	.....	.....	.....	.....
	Totals	42,846 51	38,792 45	42,059 74	40,063 70

1909 to October 31st, 1911.---Continued.

1910 June.	1911 June.	1910 July.	1911 July.	1910 August.	1911 August.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
790 75	736 58	973 51	815 99	616 51	659 00	53
89	3 04	20 76	33 17	27	6 30	54
232 34	1,761 97	673 10	601 31	125 00	443 84	55
.....	15 00	.....	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	57
.....	113 44	.....	141 55	1 00	95 88	58
84 13	78 63	94 47	86 67	33 51	73 64	59
.....	.....	.....	.....	.....	.....	60
1,108 11	2,708 66	1,761 84	1,678 69	776 29	1,278 66	
743 50	858 68	493 75	870 03	984 67	607 40	61
566 85	934 80	664 35	1,065 88	690 44	1,021 36	62
6,398 58	6,053 19	6,162 57	6,812 33	5,889 81	7,894 74	63
19 63	12 97	20 40	17 48	21 28	15 58	64
.....	.....	.....	.....	.....	.....	65
576 23	360 38	171 72	501 18	309 50	1,514 32	66
178 00	192 00	185 00	202 50	185 00	207 50	67
1,007 11	1,209 78	884 73	1,330 20	948 68	1,880 46	68
328 54	77 00	342 82	65 50	330 52	29 45	69
54 55	15 25	50 14	18 95	50 93	12 72	70
705 51	780 25	695 05	807 73	702 28	1,219 93	71
186 23	375 96	214 01	364 52	198 73	342 82	72
1,343 57	1,384 32	1,190 02	1,353 60	1,402 51	1,449 12	73
60 91	44 13	66 99	115 01	22 58	9 01	74
Cr. 8 52	42 19	40 61	35 70	.....	49 13	75
23 00	13 29	11 62	15 96	7 90	21 76	76
2,499 43	2,014 29	2,044 23	2,581 27	2,493 27	3,111 43	77
.....	.....	Cr. 4 00	.....	.....	.....	78
.....	.....	.....	.....	.....	.....	79
4,308 06	4,048 19	4,228 67	5,331 15	4,600 58	6,409 01	80
897 47	1,567 02	912 18	1,546 06	773 76	1,493 25	81
12,979 24	10,212 13	12,872 76	11,946 08	13,858 63	15,964 32	82
754 29	769 29	950 50	931 65	762 94	755 27	83
72 72	219 40	241 74	322 39	258 17	278 37	84
107 23	103 34	57 23	121 01	78 78	81 72	85
.....	.....	25 33	.....	.....	.....	86
.....	.....	.....	.....	.....	.....	87
4,323 04	4,538 97	4,066 88	6,238 31	4,366 70	6,733 55	88
1,230 66	1,722 60	975 32	1,581 46	746 22	1,634 06	89
.....	.....	.....	.....	.....	.....	90
.....	.....	.....	.....	.....	.....	91
.....	.....	.....	.....	.....	.....	92
105 35	996 59	227 06	1,332 36	229 50	450 91	93
8 05	2 74	6 66	10 94	12 83	7 87	94
.....	.....	.....	.....	.....	.....	95
.....	.....	.....	.....	.....	.....	96
719 58	676 90	808 23	1,353 89	657 78	1,114 65	97
.....	.....	Cr. 26 01	.....	.....	.....	98
352 49	73 45	383 58	Cr. 14 74	Cr. 407 29	475 22	99
3 03	Cr. 215 30	17 01	.....	1 65	.....	100
.....	.....	.....	.....	.....	.....	101
50 00	.....	65 00	32 84	40 00	125 09	102
872 50	.....	Cr. 1,599 16	Cr. 1,250 00	24 59	Cr. 1,436 00	103
.....	.....	.....	.....	.....	.....	104
.....	.....	.....	.....	.....	.....	105
41,466 83	39,083 80	37,446 99	45,641 24	40,242 94	53,473 93	

Comparative Statement of Expenses by Months, November 1st. 1909,

	Traffic Expenses.	1910 September.	1911 September.	1910 October.	1911 October.
		$ c.	$ c.	$ c.	$ c.
53	Superintendence	709 71	796 14	834 08	853 65
54	Outside Agencies	5 60	.....	.....	4 71
55	Advertising	338 83	502 04	296 89	37 70
56	Traffic Associations	.....	.....	.....	83 79
57	Fast Freight Lines	.....	.....	.....	.....
58	Industrial and Emigration Bureaus	.....	90 77	69 57	97 00
59	Stationery and Printing	19 87	138 93	222 08	125 14
60	Other Expenses	.....	.....	.....	.....
	Totals	1,074 01	1,527 88	1,422 62	1,201 99
	Transportation Expenses.				
61	Superintendence	714 21	606 38	703 09	715 81
62	Despatching Trains	652 50	972 44	611 54	759 40
63	Station Employees	6,205 58	8,254 70	6,192 97	8,397 96
64	Weighing and Car Service Associations	15 70	17 22	14 58	27 42
65	Coal and Ore Docks	.....	.....	.....	.....
66	Station Supplies and Expenses	630 07	1,692 92	724 54	1,862 83
67	Yardmasters and their Clerks	185 00	236 66	185 00	201 50
68	Yard Conductors and Brakemen	902 93	2,011 98	1,219 78	2,036 89
69	Yard Switch and Signal Tenders	.....	54 15	23 70	78 85
70	Yard Supplies and Expenses	57 67	13 65	4 75	35 02
71	Yard Enginemen	668 87	1,067 58	706 86	1,212 98
72	Engine-house Expenses—Yard	208 84	277 48	268 58	271 74
73	Fuel for Yard Locomotives	1,087 87	1,566 41	1,193 12	1,611 26
74	Water for Yard Locomotives	74 61	Cr. 10 06	59 33	Cr. 41 99
75	Lubricants for Yard Locomotives	36 44	45 08	37 69	28 76
76	Other Supplies for Yard Locomotives.	12 61	28 00	12 23	19 31
77	Operating Joint Yards and Terminals —Dr.	2,189 70	3,118 40	2,232 73	3,111 69
78	Operating Joint Yards and Terminals —Cr.	.....	.....	.....	.....
79	Motormen	.....	.....	.....	.....
80	Road Enginemen	4,078 41	6,637 84	3,665 63	6,326 65
81	Engine-house Expenses—Road	848 69	1,776 87	929 62	1,793 41
82	Fuel for Road Locomotives	12,421 82	17,247 06	10,502 04	16,540 07
83	Water for Road Locomotives	648 76	1,390 19	622 06	1,009 97
84	Lubricants for Road Locomotives	227 11	271 51	210 69	318 27
85	Other Supplies for Road Locomotives.	52 40	141 02	70 29	115 54
86	Operating Power Plants	.....	.....	.....	.....
87	Purchased Power	.....	.....	.....	.....
88	Road Trainmen	4,117 98	7,374 30	4,539 82	7,131 28
89	Train Supplies and Expenses	1,295 93	1,735 09	2,026 11	1,213 39
90	Interlockers, Block and other Signals— Operations	.....	.....	.....	.....
91	Crossing, Flagmen and Gatemen	.....	.....	.....	.....
92	Drawbridge Operation	.....	.....	.....	.....
93	Clearing Wrecks	173 56	106 59	92 80	153 52
94	Telegraph and Telephone—Operation.	42 15	37 85	5 63	123 22
95	Operating Floating Equipment	.....	.....	.....	.....
96	Express Service	.....	.....	.....	.....
97	Stationery and Printing	545 25	961 15	647 37	404 97
98	Other Expenses	.....	13 37	26 01	77 50
99	Loss and Damage—Freight	203 26	32 34	322 28	10 12
100	Loss and Damage—Baggage	26 98	27 38	10 00	3 61
101	Damage to Property	.....	.....	.....	.....
102	Damage to Stock on Right of Way	.....	25 00	50 00	.....
103	Injuries to Persons	.....	50 00	.....	Cr. 100 00
104	Operating Joint Tracks—Dr.	.....	.....	.....	.....
105	Operating Joint Tracks—Cr.	.....	.....	.....	.....
	Totals	38,324 90	57,780 55	37,910 84	55,450 95

to October 31st, 1911---Continued.

1910 Total.	1911 Total.	Increase.	Decrease.	Net Increase.	Net Decrease.	
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
8,994 27	9,265 98	271 71	.....	.....	.....	53
81 19	85 45	4 26	.....	.....	.....	54
4,625 43	5,366 89	741 46	.....	.....	.....	55
.....	103 79	103 79	.....	.....	.....	56
.....	.....	.....	.....	.....	.....	57
70 57	1,298 17	1,227 60	.....	.....	.....	58
1,133 79	1,785 03	651 24	.....	.....	.....	59
14 79	.....	.....	14 79	.....	.....	60
14,920 04	17,905 31	3,000 06	14 79	2,985 27	.....	
9,456 84	10,125 86	669 02	.....	.....	.....	61
6,365 61	10,021 48	3,655 87	.....	.....	.....	62
72,553 54	81,435 39	8,881 85	.....	.....	.....	63
265 77	243 20	.....	22 57	.....	.....	64
.....	15 00	15 00	.....	.....	.....	65
11,826 04	13,102 46	1,276 42	.....	.....	.....	66
2,308 49	2,468 51	160 02	.....	.....	.....	67
14,646 92	17,587 05	2,940 13	.....	.....	.....	68
2,714 70	728 97	.....	1,985 73	.....	.....	59
827 22	195 33	.....	631 89	.....	.....	70
9,777 86	10,736 98	959 12	.....	.....	.....	71
2,128 66	4,061 11	1,932 45	.....	.....	.....	72
22,161 39	19,069 72	.....	3,091 67	.....	.....	73
875 64	920 55	44 91	.....	.....	.....	74
459 97	375 80	.....	84 17	.....	.....	75
58 26	189 99	131 73	.....	.....	.....	76
30,225 31	30,539 58	314 27	.....	.....	.....	77
Cr. 4 00	.....	4 00	.....	.....	.....	78
.....	.....	.....	.....	.....	.....	79
55,093 22	60,097 42	5,004 20	.....	.....	.....	80
14,546 97	18,329 43	3,782 46	.....	.....	.....	81
181,997 78	171,782 02	.....	10,215 76	.....	.....	82
9,749 64	10,839 81	1,090 17	.....	.....	.....	83
3,325 14	2,315 32	.....	1,009 82	.....	.....	84
1,574 72	1,210 90	.....	363 82	.....	.....	85
193 96	.....	.....	193 96	.....	.....	86
.....	.....	.....	.....	.....	.....	87
55,818 11	68,612 80	12,794 69	.....	.....	.....	88
17,041 23	17,885 19	843 96	.....	.....	.....	89
.....	.....	.....	.....	.....	.....	90
.....	.....	.....	.....	.....	.....	91
.....	.....	.....	.....	.....	.....	92
5,123 73	3,899 90	.....	1,223 83	.....	.....	93
10,780 02	442 55	.....	10,337 47	.....	.....	94
.....	.....	.....	.....	.....	.....	95
.....	.....	.....	.....	.....	.....	96
10,093 22	10,251 08	157 86	.....	.....	.....	97
.....	622 61	622 61	.....	.....	.....	98
1,389 19	1,463 62	74 43	.....	.....	.....	99
207 80	Cr. 18 50	.....	226 30	.....	.....	100
6 07	50 00	43 93	.....	.....	.....	101
462 00	382 84	.....	79 16	.....	.....	102
2,689 43	Cr. 2,707 00	.....	5,396 43	.....	.....	103
.....	40 00	40 00	.....	.....	.....	104
.....	.....	.....	.....	.....	.....	105
556,740 45	567,316 97	45,439 10	34,862 58	10,576 52	.....	

Comparative Statement of Expenses by Months, November 1st, 1909,

No.	General Expenses.	1909 November.	1910 November.	1909 December.	1911 December.
		$ c.	$ c.	$ c.	$ c.
106	Salaries and Expenses of General Officers	1,207 46	1,033 04	2,333 51	2,215 49
107	Salaries and Expenses of Clerks and Attendants	1,775 63	1,850 12	2,460 68	1,912 59
108	General Office Supplies and Expenses	708 59	387 23	441 07	417 47
109	Law Expenses	400 00	400 00	551 36	637 24
110	Insurance	1,202 90	1,833 36	1,562 87	2,312 13
111	Relief Department Expenses				
112	Pensions				
113	Stationery and Printing	282 45	83 45	115 85	153 42
114	Other Expenses		5 20	Cr. 27	48 33
115	General Administration Joint Tracks, Yards and Terminals—Dr				
116	General Administration Joint Tracks, Yards and Terminals—Cr				
	Totals	5,577 03	5,592 40	7,465 07	7,696 67

Comparative Statement of Expenses by Months, November 1st, 1909

	General Expenses.	1910 April	1911 April.	1910 May.	1911 May.
		$ c.	$ c.	$ c.	$ c.
106	Salaries and Expenses of General Officers	1,075 21	978 59	1,170 92	1,176 37
107	Salaries and Expenses of Clerks and Attendants	1,690 95	1,997 37	1,887 29	2,027 60
108	General Office Supplies and Expenses	348 33	300 65	325 52	290 89
109	Law Expenses	465 00	400 00	415 00	400 00
110	Insurance	1,724 36	1,833 36	1,920 86	1,920 86
111	Relief Department Expenses				
112	Pensions				
113	Stationery and Printing	145 73	78 50	245 59	118 19
114	Other Expenses	27	176 45	Cr. 55	51 16
115	General Administration Joint Tracks, Yards and Terminals—Dr				24 90
116	General Administration Joint Tracks, Yards and Terminals—Cr				
	Totals	5,449 85	5,764 92	5,964 63	6,009 97

Comparative Statement of Expenses by Months, November 1st, 1909,

	General Expenses.	1910 September.	1911 September.	1910 October.	1911 October.
		$ c.	$ c.	$ c.	$ c.
106	Salaries and Expenses of General Officers	2,230 51	2,064 21	1,060 94	909 86
107	Salaries and Expenses of Clerks and Attendants	1,958 63	2,287 75	1,920 24	2,454 53
108	General Office Supplies and Expenses	363 51	275 32	554 59	343 24
109	Law Expenses	485 65	499 48	500 00	400 00
110	Insurance	1,833 36	1,833 36	1,833 36	1,833 36
111	Relief Department Expenses				
112	Pensions				
113	Stationery and Printing	5 69	65 59	13 34	46 68
114	Other Expenses	12 85	10 08	2 27	145 75
115	General Administration Joint Tracks, Yards and Terminals—Dr				
116	General Administration Joint Tracks, Yards and Terminals—Cr				
	Totals	6,890 20	7,035 79	5,884 74	6,133 42

to October 31st, 1911---Continued.

1909 January,	1910 January.	1909 February.	1910 February.	1910 March.	1911 March.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
1,113 06	1,029 39	1,116 84	1,012 96	2,204 51	2,163 83	106
1,715 44	2,150 76	1,568 85	2,074 73	1,503 98	2,082 74	107
565 76	318 30	655 81	495 47	384 07	577 93	108
400 00	Cr. 5 00	390 00	800 00	662 21	525 67	109
1,323 45	1,833 36	1,737 52	1,833,36	1,426 83	1,837 56	110
.....	.....	.....	.....	.....	.....	111
.....	.....	.....	.....	.....	.....	112
160 72	80 19	192 18	75 29	63 11	102 51	113
100 81	6 93	95 37	21 50	235 62	.....	114
.....	.....	.....	.....	.....	.....	115
.....	.....	.....	.....	.....	.....	116
5,379 24	5,413 93	5,756 57	6,313 31	6,480 33	7,290 24	

to October 31st, 1911---Continued.

1910 June.	1911 June.	1910 July.	1911 July.	1910 August.	1911 August.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
2,218 38	2,164 55	1,085 42	1,320 00	1,166 73	1,005 43	106
2,450 69	2,062 44	1,980 81	1,968 75	2,633 61	2,203 86	107
498 79	265 50	398 83	417 71	354 31	519 31	108
563 11	491 79	408 00	535 00	500 00	900 00	109
1,865 61	1,858 36	2,080 36	1,939 74	2,181 36	1,810 54	110
.....	.....	.....	.....	.....	.....	111
.....	.....	.....	.....	.....	.....	112
513 82	497 27	255 28	59 78	18 83	109 29	113
24 06	1,102 47	.....	395 08	.....	34 22	114
.....	.....	.....	.....	.....	.....	115
.....	.....	.....	.....	.....	.....	116
8,134 46	8,442 38	6,208 70	6,636 06	6,854 84	6,582 65	

to October 31st, 1911---Concluded.

1910 Total.	1911 Total.	Increase.	Decrease.	Net Increase.	Net Decrease.	No.
$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
17,983 49	17,073 72	.....	909 77	.....	.....	106
23,546 80	25,073 24	1,526 44	.....	.....	.....	107
5,599 18	4,609 02	.....	990 16	.....	.....	108
5,740 33	5,984 18	243 85	.....	.....	.....	109
20,692 84	22,679 35	1,986 51	.....	.....	.....	110
.....	.....	.....	.....	.....	.....	111
.....	.....	.....	.....	.....	.....	112
2,012 59	1,470 16	.....	542 43	.....	.....	113
470 43	1,997 17	1,526 74	.....	.....	.....	114
.....	24 90	24 90	.....	.....	.....	115
.....	.....	.....	.....	.....	.....	116
76,045 66	78,911 74	5,308 44	2,442 36	2,866 08	.....	

TOWNSITE ACCOUNTS.

Statement of Lots Sold—Townsites.—Nov. 1st, 1910, to Oct. 31st, 1911.

Townsite.	Lots sold.	Amount paid.	Balance due.
Temagami	$ 75 00	$ 25 00	$ 50 00
Englehart	1,200 00	397 35	802 65
Monteith	60 00	10 00	50 00
Iroquois Falls	600 00	100 00	500 00
Cochrane	12,055 00	10,020 00	2,035 00
Totals	13,990 00	10,552 35	3,437 65

Statement—Receipts and Expenses—Townsite Accounts.

DEBIT.		CREDIT.	
Cash in bank, November 1st, 1910	$37,200 53	Cash in Bank, October 31st, 1911.	$62,271 59
Lots sold, cash paid as per statem'nt	10,552 35	Protest Cheque Charges	1 58
Deferred payments received	19,020 91	Accounts Paid, Wages, Clearing Townsites, etc	7,189 28
Interest	1,865 41	Cash short, burnt Cochrane fire, July 11th, 1911	324 50
Interest on Deposits	1,147 75		
Total	$69,786 95	Total	$69,785 95

Statement of Land Purchased by T. & N. O. Railway. November 1st, 1910, to October 31st, 1911.

R. J. MacBain, Niagara Falls, Ont.	
S. ½ Lot 11, Con. 2, Township Cook, 7.62 acres	$350 00
Treasurer of Ontario.	
N. ½ Lot 6, Con. 4, Township Clergue, 11.6 acres	11 60
Thos. Willson, Hamilton, Ont.	
N. ½ Lot 3, Con. 3, Township Pacaud, 4.5 acres	100 00
W. J. Bole, Toronto, Ont.	
N. ½ Lot 10, Con. 6, Township Clergue	480 00
Treasurer of Ontario.	
S. ½ Lot 1, Con. 6, Township Bowman, .29 acres	0 29
Treasurer of Ontario.	
Additional amount, account right of way, M. 113 to Cochrane	100 44
E. J. Rabbich, New Liskeard, Ont.	
Lot No. 352, New Liskeard, Ont.	650 00
Albert Lynn, New Liskeard, Ont.	
Lot No. 356 and house on same, New Liskeard, Ont.	700 00
F. W. Burnes, New Liskeard, Ont.	
Lot No. 347, New Liskeard, Ont.	400 00
J. F. Campbell, New Liskeard, Ont.	
Lot No. 344, New Liskeard, Ont.	375 00
Geo. M. Donaldson.	
Lot No. 359, New Liskeard, Ont.	400 00
W. Walkinshaw.	
Lot No. 353, New Liskeard, Ont.	350 00
Treasurer of Ontario.	
S. ½ Lot 10, Con. 6, Township Clergue (Iroquois Falls townsite)	166 50
William Vivian, Tillsonburg, Ont.	
N. ½ Lot 11, Con. 5, Township Calvert	25 00
Town of New Liskeard.	
Right of Way *re* New Liskeard Spur	800 00
John Carlton.	
N. ½ Lot 6, Con. 6, Township Bowman	100 00
	$5,008 83

Temiskaming and Northern Ontario Railway Audit Office.

Classified Tonnage—November 1st, 1910, to October 31st, 1911.

Commodities.	Freight originating on this road.	Freight received from foreign roads.	Total Tonnage.	
	Whole Tons.	Whole Tons.	Whole Tons.	Per cent.
Products of Agriculture—				
1 Grain	2,283	5,922	8,205	1.454
2 Flour	1,648	5,128	6,776	1.201
3 Other mill products	.....	1,272	1,272	.225
4 Hay	3,889	5,855	9,744	1.727
5 Tobacco	.....	.....	.....	.....
7 Fruit and Vegetables	2,819	5,432	8,251	1.463
8 Other products of Agriculture	.....	.....	.....	.....
Products of Animals—				
9 Live Stock	3,965	3,919	7,884	1.397
10 Dressed Meats	687	4,535	5,222	.926
11 Other packing house products	.....	.....	.....	.....
12 Poultry, Game and Fish	.....	.....	.....	.....
13 Wool	.....	.....	.....	.....
14 Hides and Leather	.....	.....	.....	.....
15 Other products of Animals	127	646	773	.137
Products of Mines—				
16 Anthracite Coal	2,665	15,624	18,289	3.242
17 Bituminous Coal	18,441	76,518	94,959	16.833
18 Coke	.....	.....	.....	.....
19 Ores	47,198	1	47,199	8.367
20 Stone, Sand and other articles	2,154	466	2,620	.465
21 Other Products of Mines	.....	.....	.....	.....
Products of Forests—				
22 Lumber	69,890	12,707	82,597	14.642
23 Other Products of Forests	132,079	698	132,777	23.537
Manufactures—				
24 Petroleum and other Oils	1,036	3,181	4,217	.748
25 Sugar	.....	.....	.....	.....
26 Iron, Pig and Bloom	.....	.....	.....	.....
27 Iron and Steel Rails	.....	15,725	15,725	2.788
28 Other Castings and Machinery	2,090	4,513	6,603	1.170
29 Bar and Sheet Metal	1,655	2,724	4,379	.777
30 Cement, Brick and Lime	3,897	16,683	20,580	3.648
31 Agricultural Implements	522	1,128	1,650	.293
32 Wagons, Carriages, Tools, etc	.....	.....	.....	.....
33 Wines, Liquors and Beers	1,679	3,643	5,322	.943
34 Household Goods and Furniture	2,349	2,959	5,308	.941
35 Other Manufactures	6,677	19,255	25,932	4.597
36 Merchandize	7,027	13,491	20,518	3.637
Miscellaneous—				
37 Other Commodities not mentioned above	10,212	17,106	27,318	4.842
Totals	324,989	239,131	564,120	100.000

Tons One Mile—November 1st, 1910, to October 31st, 1911.

Month.	Total Tons.	Tons, North Bound.	Tons, South Bound.	Tons, One Mile.
November 1910.....	38,390	21,262	17,128	4,060,219
December "	49,843	31,708	18,135	5,688,137
January 1911.....	54,235	38,701	15,534	6,727,380
February "	44,010	28,643	15,367	4,378,311
March "	50,292	32,796	17,496	5,804,647
April "	34,105	21,995	12,110	3,749,518
May "	33,412	18,925	14,487	3,624,252
June "	42,988	19,749	23,239	4,370,816
July "	40,879	20,035	20,844	4,397,422
August "	49,810	28,825	20,985	5,873,224
September "	63,357	34,390	28,967	7,778,199
October "	62,799	45,233	17,566	9,188,143
Totals.....	564,120	342,262	221,858	65,640,268

Traffic and Mileage Statistics.

Passenger Traffic.

1	Total passengers carried; earning revenue	479,102
2	Number of passengers carried one mile	26,497,621
3	Number of passengers carried one mile per mile of road	9,741.772
4	Average distance carried (miles)	55.30
5	Total passenger revenue	$653,063 01
6	Average amount received each passenger	$1.36
7	Average amount received each passenger per mile of road (cents)	2.46
8	Total passenger earnings	$725,387 26
9	Passenger earnings per mile of road	$2,666 86
10	Passenger earnings per train mile	$1 93

Freight Traffic.

11	Number of tons carried of freight earning revenue	564,120
12	Number of tons carried one mile	65,640,268
13	Number of tons carried one mile per mile of road	238 383
14	Average distance haul of one ton (miles)	116.36
15	Total freight revenue	$974,678 33
16	Average amount received for each ton of freight	$1 73
17	Average receipts per ton per mile (cents)	1.48
18	Freight earnings per mile of road	$3,573 26
19	Freight revenue per train mile	$2 62

Total Traffic.

20	Operating revenues	$1,780,964 83
21	Operating revenues per mile of road	6,529 18
22	Operating revenues per train mile	2 37
23	Operating expenses	$1,181,998 63
24	Operating expenses per mile of road	4.333 31
25	Operating expenses per train mile	1 57
26	Net operating revenue	598,966 20
27	Net operating revenue per mile of road	2,195 87

Car Mileage.

28	Average number of passengers per car mile	.13
29	Average number of passengers per train mile	.71
30	Average number of passenger cars per train mile	5.48
31	Mileage of passenger cars	2,051,227
32	Mileage of loaded freight cars north and east	3,004,374
33	Mileage of loaded freight cars south and west	989,070
34	Mileage of empty freight cars north and east	235,600
35	Mileage of empty freight cars south and west	2,201,773

36 Average number of freight cars per train mile	17.39
37 Average number of loaded cars per train mile	10.79
38 Average number of empty cars per train mile	6.6
39 Average number of tons of freight per train mile	177
40 Average number of tons of freight per loaded car mile	16.44
41 Average mileage operated during year	272.77

Train Mileage.

42 Mileage of revenue passenger trains	373,935
43 Mileage of revenue mixed trains	2,358
44 Mileage of revenue freight trains	369,863
45 Mileage of revenue special trains	5,036
46 Total revenue train mileage	751,192

Average Wages November 1st, 1910, to October 31st, 1911.

Class.	No.	Total days worked.	Total compensation.	Average daily compensation.
			$ c.	$ c.
General Officers	12	4,196	24,855 00	5 92
Other Officers	15	4,365	15,646 42	3 58
General Office Clerks	75	21,268	38,564 22	1 81
Station Agents	30	8,940	25,328 28	2 83
Other Station Men	136	24,879	43,284 91	1 74
Engineers	39	12,226	48 960 76	4 00
Firemen	46	12,236	30,722 92	2 50
Conductors	37	11,375	39,729 57	3 49
Other Trainmen	82	24,812	59,158 44	2 38
Machinists	30	5,479	17,704 12	3 23
Carpenters	39	6,884	18,243 09	2 65
Other Shopmen	172	41,217	81,578 77	1 98
Other Trackmen	514	111,116	201,818 38	1 82
Section Foremen	73	17,929	48,690 19	2 72
Switch Tenders, etc	1	365	930 00	2 55
Operators and Dispatchers	30	7,811	21,883 35	2 81
All Others	132	14,805	31,424 23	2 12
			$748,522 65	
Construction Pay Rolls			34,696 24	
Total			$783,218 89	

Equipment owned by Temiskaming and Northern Ontario Railway October 31st, 1911.

——	Total authorized equipment.	Available for service.	Destroyed or transferred to other classes.	Capacity. Tractive Power. Pounds.	Valuation.	Total valuation carried in general ledger.
					$ c.	$ c.
STEAM LOCOMOTIVES.						
Class A 3	4	4	.....	56,320	.....	.....
Class C 2	2	2	.....	26,488	.....	.....
Class C 3	30	30	.....	704,220	.....	.....
Class F 3	4	4	.....	121,600	.....	.....
Totals	40	40	.....	908,628	.....	663,250 61
PASSENGER EQUIPMENT.						
Passenger, 1st Class	14	14	.....	}	278,498 82	.....
Passenger, 2nd Class	21	20	1	}		.....
Parlor-Cafe	3	3	.....	.....	58,650 88	.....
Baggage and Express	7	7	.....	}	67,070 27	.....
Mail and Express	6	5	.....	}		.....
Private	3	3	.....	.....	39,591 11	.....
Totals	54	52	1	.....	.....	443,811 08
FREIGHT EQUIPMENT.						
Box	150	147	.....	.....	179,908 40	.....
Stock	10	10	.....	.....	8,989 20	.....
Vans	20	19	.....	.....	32,785 72	.....
Flats	498	474	11	.....	405,197 33	.....
Totals	678	650	11	.....	.....	626,880 65
MAINTENANCE OF WAY AND STRUCTURES EQUIPMENT.						
Pile Driver	1	1	.....	.....	11,772 35	.....
Snow Plows	4	3	.....	.....	19,310 20	.....
Flangers	3	3	.....	.....	4,505 21	.....
Steam Shovels	2	2	.....	.....	17,249 63	.....
Wrecking Cranes	2	2	.....	.....	29,678 00	.....
Auxiliaries Complete	2	2	.....	.....	4,565 67	.....
Ledgerwood Ballast Unloaders	4	4	}			
Side Ballast Plows	6	6	}			
Jordan Ballast Spreader	1	1	}	.....	26,650 49	.....
Mahoney Ditching Machine	1	1	}			
Centre Ballast Plows	3	3	}			
American Railroad Ditcher	1	1	.....	.....	8,777 73	.....
Centre Ballast Spreader	1	1	.....	.....	1,000 85	.....
Cinder Cars, Steel	12	12	.....	.....	18,485 32	.....
Hand Cars	120	105	15	}		
Push Cars	74	74	.....	}		
Motor Cars	2	2	.....	}	7,379 11	.....
Velocipedes	20	20	.....	}		
Steam Shovel	1	1	.....	}		
Hart Convertible Cars	17	17	(In litigation)			
Totals	277	261	15	.....	.....	149,374 56
Total Valuation of Equipment	.....	.....	.....	.....	.....	$1,883,416 90

Game on the line of the T. & N. O. Railway.

AGREEMENT made this first day of January, A.D. 1911.

BETWEEN:

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, OF THE FIRST PART

and

ALBERT JOSEPH FISHER, of the town of NEW LISKEARD, in the District of Nipissing, Physician, and HERMAN HENRY MOORE, of the Town of HAILEYBURY, in the said District, Physician,

OF THE SECOND PART.

WHEREAS the parties of the first part are constructing a railway from a point at or near mileage 222, on their said railway, to the town of Porcupine, and which said road is commonly known as the "Porcupine Railway."

AND WHEREAS the said parties hereto have entered into an arrangement whereby the parties of the second part will supply on certain terms and conditions, medical and hospital attendance, for all men who may be engaged on the said Porcupine Railway construction during the currency of this agreement.

IT IS THEREFORE AGREED BY AND BETWEEN THE PARTIES HERETO AS FOLLOWS:

1. The parties of the second part covenant and agree to furnish efficient medical service, and establish suitable hospital accommodation on the said works, and to furnish the said hospital with all the necessaries that may be required for the care of men working on the said railway who may be brought to the said hospital, suffering either from injuries or from illness, and will also supply all drugs, surgical instruments, nurses, etc., which may be considered necessary by the Superintendent of construction placed in charge of the said works by the parties of the first part, the said Superintendent of Construction being in all cases the sole judge, as to whether or not the parties hereto of the second part are properly complying with the terms and conditions of this agreement.

2. In addition to furnishing the drugs, instruments, nurses, etc., above specified, the parties of the second part are also to engage the services of a competent medical man, licensed to practise in the Province of Ontario, and the said party so to be engaged, will devote his entire time and services to the men working on the said railway, and to the hospitals which may be established by the parties of the second part under the terms of this agreement.

3. In addition to establishing the said hospitals, the said parties of the second part or their representative to be engaged as hereinbefore provided must make regular visits to the camps belonging to the parties of the first part, on the said works, and are to provide each of the said camps with a supply of medical and such surgical implements as may be considered necessary by the said Superintendent of Construction.

4. The parties of the second part covenant and agree to carry out all the regulations of the Public Health Act, or other Government requirements in connection with keeping the camps in said works in proper sanitary condition.

5. In addition to the engaging of the medical man to be on the said works, constantly, the said parties hereto of the second part covenant and agree that either one or both of them will visit the works and hospitals to be established under the terms of this agreement, at least once a month, or oftener if severe illness, accident to any of the employees, or an epidemic of sickness should require their services, and thoroughly inspect the same, and make any alterations or improvements that may be required by the said Superintendent of Construction.

6. The parties of the second part are to be paid at the rate of one dollar per month, per man, for their said medical and hospital attendance or a proportionate charge per month for employees who may quit work or be discharged during any particular month, and the said monthly payment or proportionate part thereof will be deducted by the parties of the first part out of the wages of each employee, whose name appears on the pay-roll, and paid over by them to the said parties of the second part at the end of each month during the currency of this agreement.

7. If the said Superintendent of Construction should find any fault with the parties of the second part as to the manner in which they are carrying out the terms and conditions of this agreement, or if the said parties of the second part should refuse or neglect to carry out any amendments, suggestions or alterations asked for by the said Superintendent of Construction, the said refusal or neglect shall give the parties hereto of the first part the privilege of cancelling this agreement forthwith at any time after they have been notified by the said Superintendent of Construction of such neglect or refusal on behalf of the parties of the second part.

8. This agreement shall continue in force until the final completion of the said railway unless sooner cancelled by the refusal or neglect of the parties of the second part to carry out the orders of the Superintendent of Construction as hereinbefore provided for.

IN WITNESS WHEREOF the parties hereto have hereunto set their hands and seals.

SIGNED, SEALED AND DELIVERED,

In the presence of

(Sgd.) E. M. GOODMAN.

(Sgd.) A. J. FISHER. (Seal)

(Sgd.) J. H. SHIBLEY,
to sig. of H. H. MOORE.

(Sgd.) H. H. MOORE. (Seal)

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

(Sgd.) B. L. THOMPSON.

(Sgd.) J. L. ENGLEHART, *Chairman.* (Seal)

(Sgd.) A. J. MCGEE,
Secretary-Treasurer.

MEMORANDUM OF AGREEMENT made in duplicate this Twentieth day of January in the year of our Lord one thousand nine hundred and eleven.

BETWEEN:

EDWARD BENOIT of the Town of North Bay and MATTHEW BOIVIN of the Town of Cochrane, hereinafter called the Contractors,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH that in consideration of the mutual covenants and agreements herein contained the parties agree as follows:

1. The Contractors will deliver to the Commission at mileage 227½ of the right of way of the Commission and along the right of way of the Porcupine branch now being constructed one hundred thousand railway ties to be made from sound timber of good merchantable quality and in strict compliance in all respects with the specifications hereto annexed which specifications are hereby made part of this contract, it being however agreed that should there in any respect be any discrepancy between the said specifications and these presents then the terms of these presents shall govern. Not less than eighty thousand of said ties shall be delivered and piled completely ready for inspection on or before the first day of April, 1911, and the balance thereof on or before the first day of May, 1911, time being agreed to be material and of the essence of this contract.

2. Twenty-five thousand of said railway ties shall be so delivered on the main line siding of the railway of the Commission at mileage 227½, and the remaining seventy-five thousand on the right of way of the Porcupine branch at such points as may from time to time be directed or approved by the Tie Inspector of the Commission, and so that there shall always be ties enough behind the steel as same is being laid to prevent hauling ties back to meet track laying.

3. The Contractors shall pay in cash for all ties purchased by them from other parties and shall not directly or indirectly contract for ties for said work, the price of which shall be payable either wholly or partly in goods or otherwise than in actual cash.

4. The Contractors shall furnish satisfactory evidence to the Engineer from time to time as requested by the Engineer, of their having complied with the provisions of the last preceding clause hereof and as to the land upon which all ties delivered from time to time have been cut, and that the Contractors or other party cutting same had the legal right to cut such ties and dispose of them, and that the same are free from all liens and attachments, and until such evidence to the satisfaction of the Engineer is furnished and until ties from time to time are actually accepted and marked by the Tie Inspector as aforesaid same shall be at the risk of the Contractors.

5. All culled and rejected ties must be promptly removed by the Contractors from the railway right of way as required by said specifications.

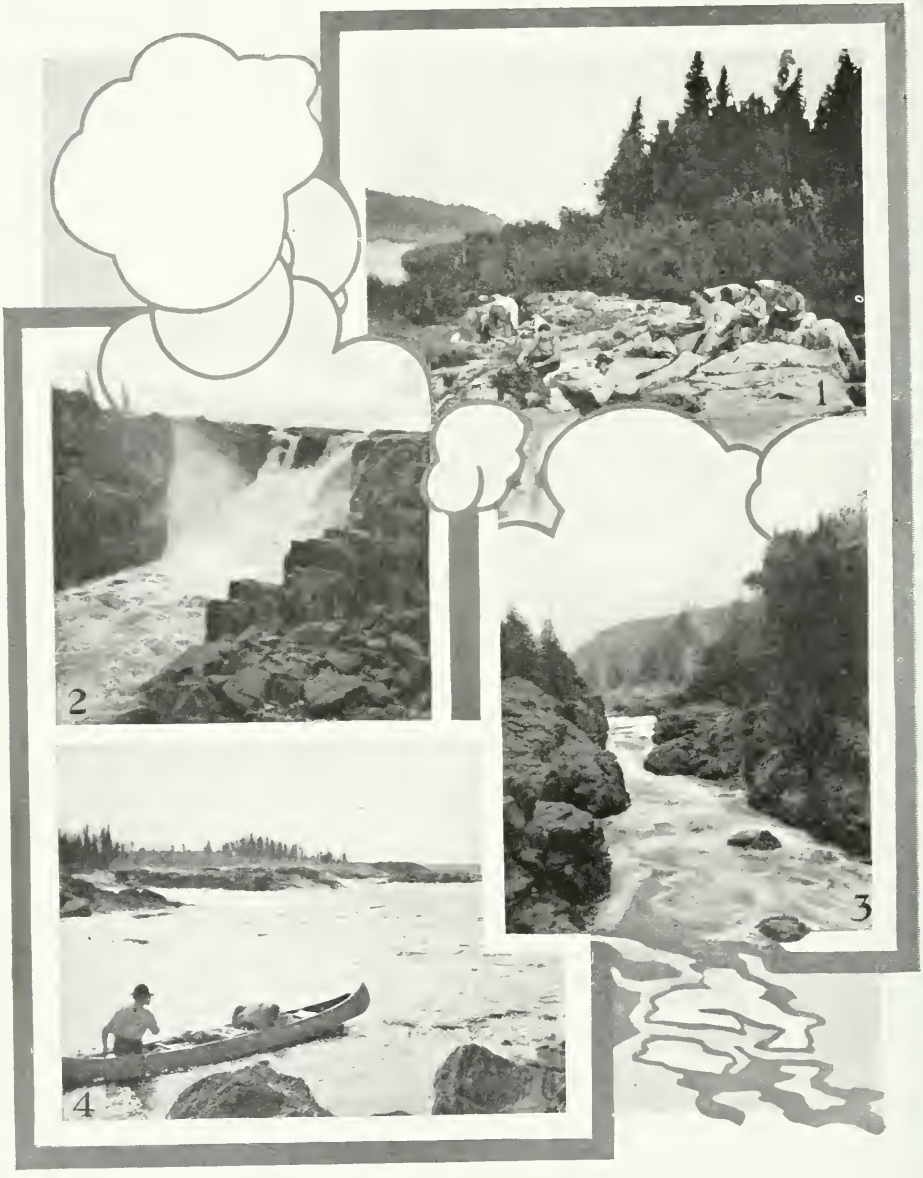
6. If the Contractors shall become bankrupt or insolvent or shall make an assignment for the benefit of their creditors, or shall compound with their creditors

or propose any composition to their creditors for the settlement of their debts, or shall attempt to transfer, sublet, or assign this contract, or any part thereof, without the consent in writing of the Engineer, or if by the report of the Engineer it shall appear that the rate of progress of the said work in the opinion of the Engineer is not such as to insure the completion of the same within the time prescribed, or if the Contractors shall in the opinion of the Engineer (who shall be the sole and absolute judge in that behalf) persist in any course violating the provisions of this contract or any of them, the Commission shall have the power and right at its discretion without previous notice and without process of law, to take the work or any part thereof out of the hands of the Contractors and either relet the same to any other person or persons with or without previous advertisement or to employ workmen and provide material, tools and other necessary things at the expense of the Contractors, or to take such other steps as the Commission may consider necessary in order to secure completion of the said work, and in any such case the Contractors shall have no claim to any payment in respect of work performed, but all things done and means employed under this clause by the Commission shall be as binding on the Contractors as if the things done and means employed had been done and employed by them under this contract; but the Contractors shall nevertheless remain liable for all loss and damages which may be suffered by the Commission by reason of any matters aforesaid, which damages shall be deemed to include all salaries or wages which shall be payable to the person or persons superintending the work on behalf of the Commission and no action or claim shall be raised or made by the Contractors by reason or on account of the ultimate cost of the work so taken over proving greater than in the opinion of the Contractors it should be, and the amount of all such loss and damages shall be computed and ascertained by the Engineer whose certificate certifying the amount hereof shall be final and binding upon all parties; but notwithstanding any of the matters aforesaid the Contractors shall receive credit for all amounts owing to them for the part of the work which they shall have performed subject, however, to the right of the Commission to deduct therefrom all such loss and damages as aforesaid so certified by the Engineer.

7. The Commission in consideration of the premises hereby covenants with the Contractors that the Contractors from time to time and in all respects having fulfilled the covenants and agreements herein contained, and on the Contractors part intended to be fulfilled, will, on the certificates of the Engineer, be paid for said ties so delivered and accepted the following prices, that is to say: Twenty-six cents per tie for Number One ties, and twenty-four cents per tie for Number Two ties, payable as follows: Ninety per cent. monthly on progress estimates of the Engineer and the balance within forty days after the delivery to the Commission of the final certificate of the Engineer certifying to the final completion of the whole work to the satisfaction of the Engineer, and certifying that the said Engineer has been satisfied by the Contractors that all wages of all workmen, laborers and servants of the Contractors and of all sub-contractors under them as well as the price of all ties purchased by the Contractors from other parties have been fully paid.

8. Crown dues, if any, payable in respect of timber taken from Crown lands and used for the manufacture of ties hereunder shall be paid by the Commission, but all other dues including Crown dues on any timber used by the Contractors for the construction of buildings or for any other matter connected with this contract shall be paid by the Contractors.

9. The word " Contractors " wherever it appears in this contract shall be deemed



1. Having Lunch on a portage on Mattagami River—Island Portage.
2. Smokey Falls, Mattagami River.
3. Gorge below Smokey Falls, Mattagami River.
4. Shooting a Rapids, Mattagami River.

to include the Contractors and their heirs, executors and administrators and the word "Engineer" shall mean the Chief Engineer for the time being, appointed by the Commission and having control of the work of construction of the Porcupine branch of the line of railway of the Commission.

IN WITNESS WHEREOF this agreement has been duly signed, sealed and executed by the said Contractors, and duly executed by the Commission under its corporate seal and the hands of its Chairman and Secretary.

SIGNED, SEALED AND DELIVERED,
In the presence of

(Sgd.) ED. BENOIT. (Seal)

(Sgd.) R. E. DAVIS.

(Sgd.) MATT BOIVIN. (Seal)

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

(Sgd.) B. L. THOMPSON.

(Sgd.) J. L. ENGLEHART, *Chairman.*
(Seal).

A. J. MCGEE, *Sec'y-Treas.*

KNOW ALL MEN BY THESE PRESENTS that we EDWARD BENOIT of North Bay and MATTHEW BOIVIN of Cochrane, Contractors, hereinafter called the principles, and John M. McNamara, of North Bay, one of His Majesty's Counsel, learned in the law, and MELINDA M. BENOIT, of North Bay, wife of the said Edward Benoit, hereinafter called the Sureties, are held and firmly bound unto the Temiskaming and Northern Ontario Railway Commission, hereinafter called the Obligee, in the full and just sum of two thousand dollars of lawful money of Canada, for the payment of which sum well and truly to be made the said Principles and each of them, and the said Sureties and each of them, hereby bind themselves and their respective heirs, executors, administrators and assigns jointly and severally firmly by these presents.

SIGNED, SEALED AND DELIVERED by the said Principals and said Sureties at North Bay this Twentieth day of January, A.D. 1911.

WHEREAS the Principals have entered unto a written contract hereto annexed with the Obligee for the sale and delivery of one hundred thousand ties.

NOW THEREFORE the condition of the foregoing obligation is such that if the said Principals their executors, administrators or assigns do and shall well and faithfully do all the work and furnish all the materials, and observe and perform all the matters and things required to be done, furnished, observed and performed by them under the said contract hereto annexed, within the times in the manner and according to the true intent and meaning of the said contract, then this obligation shall be void, otherwise the same shall remain in full force and virtue.

IN TESTIMONY WHEREOF the parties have executed these presents under their hands and seals the day and year first above written.

SIGNED, SEALED AND DELIVERED,
In the presence of:

as to signature of Edward Benoit and
Matthew Boivin.

(Sgd.) Ed. Benoit. (Seal)

(Sgd.) Matthew Boivin. (Seal)

(Sgd.) R. E. Davis
as to signature by John M. McNamara
and Melinda M. Benoit.

(Sgd.) J. M. McNamara (Seal)

(Sgd.) Melinda Benoit. (Seal)

MEMORANDUM OF AGREEMENT made this 4th day of April, in the year of our Lord 1911.

Between:

BUFFALO & SUSQUEHANNA COAL & COKE COMPANY, of Buffalo, N.Y., hereinafter called the Contractors,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

1. Subject to the terms hereof the Contractors agree to sell to the Commission, and the Commission agree to buy from the Contractors, sixty thousand net tons Run of Mine Coal of DuBois and Sagamore Mines at the price of one dollar and ninety-four cents per net ton (two thousand pounds) on board cars International Bridge, Black Rock, N.Y. Delivery as required up to April 1st, 1912, and subject to the provisions hereinafter stated.

2. The Contractors absolutely guarantee, (*a*) that all coal to be delivered under this Contract shall be suitable for the purposes of the railway of the Commission, and (*b*) shall on analysis in manner hereinafter provided prove to be at least equal to the following which is agreed to be the standard analysis:

Moisture	1.25
Hydro-Carbons	28.75
Fixed Carbon	63.25
Ash	6.75
	100.00

Sulphur not exceeding 1.25.

3. Samples for purpose of analysis may be taken (so far as deemed necessary by the Commission) from each car-load of coal on or at any time after the arrival thereof at North Bay and may be so taken at any point on the railway of the Commission, and such sample shall consist of not less than twenty-five pounds of lump and slack in the same relative proportions as appears in the shipment, to be taken from car-load by the Superintendent, the Master Mechanic, or the Storekeeper, of the Commission, and any sample so taken shall be conclusively presumed to be a fair sample for purposes of analysis of such car-load and the certificate of Milton L. Hersey, Analyst and Chemist, of Montreal, as to whether such sample answers the aforesaid guarantee (*b*) of the Contractors shall be absolutely final, binding and conclusive upon the parties as to whether the car-load from which such sample has been taken answers such guarantee.

4. In case of analysis as aforesaid any car-load of coal delivered under this contract shall be found below standard quality as shown by the analyst's certificate as aforesaid, the Commission shall be at liberty to reject such car-load or the portion of it not used, notwithstanding that the necessary entries for passing same through the Customs may have been made and notwithstanding that same may have been unloaded or stored or wholly or partly paid for or otherwise dealt with and thereupon the same shall be at the risk of and shall be deemed for all purposes to be the property of the Contractors who shall forthwith remove and take delivery of same and repay to the Commission all moneys which the Commission may have paid in respect thereof whether for freight, duties, cost of analysis, storage, unloading or any other charges or expenses and if the Commission shall theretofore have paid the price or any part thereof, the Contractors shall forwith repay the same. IT BEING HOWEVER EXPRESSLY AGREED THAT the aforesaid right of the Commission to reject any coal so delivered shall be in addition to all its other legal rights and remedies in the premises, and not in substitution for same or any of them.

5. Should coal at any time delivered under this contract whether analyzed as aforesaid or not and irrespective of the result of such analysis prove in the opinion of the Master Mechanic or Superintendent of the Commission unsuitable for the purposes of the railway of the Commission, the Commission may at its option by notice in writing to the Contractors cancel and annul this contract as to any coal not theretofore shipped without prejudice to the liability of the Contractors for any breaches of this contract.

6. Beginning with the month of April, 1911, there shall be shipped by the Contractors, from the mines, properly consigned to the Commission at North Bay Junct., and with all freight and other charges prepaid to International Bridge, Black Rock, N.Y., approximately twelve hundred tons per week subject to the increase or diminution from time to time of the weekly shipments as shall be required by written notice, by letter or telegram from the Storekeeper of the Commission at North Bay to the Contractors at Buffalo, such notice to be duly sent from North Bay at least one week prior to the week, to the shipments of which such notice shall apply. Coal will be sold at initial manifest weights, which shall be binding and no claim shall be allowed for short weight except in the case of unusual loss by reason of defective cars. Provided and required that twenty-five per cent. of daily shipments of said coal be delivered in flat-bottomed cars.

7. The Commission shall further have the right at any time to cancel its purchase hereunder to the extent of not more than ten per cent. of the quantity of coal covered by this contract, in which case such ten per cent. or less proportion as the case may be, shall be taken from the last deliveries herein agreed upon.

8. If, during the continuance of this contract, the Commission is unable to make use of the said coal by reason of strike, destruction or disability of its railway, or any part thereof, the Commission shall have the right during the continuance of such disability at its option to discontinue taking coal in the quantities herein specified.

It is also understood that should Contractors encounter strikes, accidents, shut-downs at the mines from reasons beyond their control, they shall not be expected to deliver on this contract during the period of suspension.

9. At the time of each shipment the Contractors shall send to the Storekeeper of the Commission at North Bay, five correct copies of invoice of the coal covered by such consignment charged at the price of one dollar and ninety-four cents per ton aforesaid, two of which copies shall be duly certified as required by the Canadian Customs law.

10. Payments shall be made by the Commission to the Contractors, in Toronto funds, for all coal delivered to the Commission at North Bay in any one month, on or before the 20th day of the following month.

11. This contract shall inure to the benefit of and be binding upon the successors and assigns of the parties respectively.

AS WITNESS the corporate seals of the said parties under the hands of the proper officers in that behalf.

WITNESS:

(Sgd.) BUFFALO & SUSQUEHANNA COAL & COKE CO.

(Sgd.) M. W. DRULLARD.

by J. W. TROUNCE, *Gen. Sales Agt.*

WITNESS:

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

(Seal).

(Sgd.) J. L. ENGLEHART, *Chairman.*

(Sgd.) W. A. GRAHAM,
P.A. & S.K.

(Sgd.) A. J. MCGEE, *Sec'y-Treas.*

THIS AGREEMENT made the first day of May, A.D. 1911.

BETWEEN:

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Lessor,

and

THE GRAND TRUNK RAILWAY COMPANY, of Canada, hereinafter called the Lessee.

WHEREAS by a certain other agreement between the parties bearing even date herewith, hereinafter referred to as "The Running Rights Agreement," the

Lessor has granted to the Lessee the right jointly and equally with the Lessor of using and enjoying the freight terminals of the Lessor at North Bay, and the main line of the Lessor's railway from North Bay to Cochrane.

AND WHEREAS the Lessor is the owner of lands for a right of way from the south easterly limit of said joint terminals at North Bay to a point adjoining the right of way of the Canadian Pacific Railway Company at Nipissing Junction, and approximately opposite the terminus at Nipissing Junction of the Lessee's line of railway.

AND WHEREAS the Lessee has requested the Lessor to build and construct a branch or extension of the Lessor's railway over said lands from the said south easterly limit of said joint terminals to the limit of the right of way of the Canadian Pacific Railway Company at Nipissing Junction and to lease same to the Lessee.

AND WHEREAS it is desirable and in the public interest that the said branch shall be constructed so as to form a direct connection between the lines of railway of the Lessor and Lessee.

NOW THESE PRESENTS WITNESS that the agreement between the parties in the premises is as follows:

1. The Lessor shall without undue delay proceed to lay out and construct according to the standard of construction of the Lessor's present line of railway, a branch or extension of the Lessor's said railway from the south easterly limit of the said joint terminals to the limit of the right of way of the Canadian Pacific Railway Co. at Nipissing Junction aforesaid, for the purposes of which laying out and construction and every matter connected therewith the Lessor, its servants and agents shall from time to time have access to and the right to possession of the said lands and every part thereof in the same manner as if this demise had not been made.

2. In consideration of the rents, covenants and agreements hereinafter contained the Lessor has demised and leased, and by these presents doth demise and lease unto the Lessee its successors and assigns for the period, and on the conditions hereinafter specified, the said lands constituting the Lessor's right of way from the south easterly limit of said joint terminals to the limit of the right of way of the Canadian Pacific Railway Company, at Nipissing Junction, together with the railway track appurtenances herein referred to TO HAVE AND TO HOLD the same and every part thereof unto, and to the use of the Lessee its successors and assigns for the term of fifty years from the date on which the Lessee shall take possession of the premises subject to the right of either party to determine the said term at any time after the expiration of twenty years from said date on not less than five years' written notice to the other party to that effect.

3. The rent payable by the Lessee to the Lessor hereunder shall be an annual sum equal to four and one-half per cent. of the cost of said right of way as herein agreed upon, and of the laying out and construction of said branch of the Lessor's railway, and of the cost of betterments, if any, made by the Lessor during the continuance of the said term, with the consent and approval of the Lessee, in accordance with the provisions hereinafter contained. The cost of said lands and of all surveys and other work done and performed thereon up to the first day of April, 1911, to be the sum of $6,968.33. Said rental shall include four and one-half per cent. of said sum reckoned from said first day of April, 1911, and four and one-half per cent. of each other item of expenditure by the Lessor in connection with the laying

out and construction of said branch or in subsequent betterments as aforesaid made pursuant to the provisions hereof reckoned from the respective dates of payment thereof by the Lessor.

4. If at any time during the continuance of the said term the Lessor shall deem it necessary or expedient to make any expenditure upon capital account for the improvement of the said line of railway, by way of replacement of structures by others more modern or for any other betterments, the Lessor may expend such sums and the amount thereof shall be added to the cost of the line and thereafter considered as part of the cost thereof upon which interest by way of rental at the rate aforesaid shall be paid by the Lessee; provided that no such expenditures shall be entered upon or made without the consent and approval of the Lessee.

5. The Lessee shall pay before entering upon the use and occupation of the said line hereunder four and one-half per cent. per annum of the said agreed cost of said lands from the said first day of April, 1911, to the date when the Lessee shall enter upon the occupation and use of the said line hereunder and four and one-half per cent. of all expenditures by the Lessor in the laying out and construction of the said line from the respective dates of the payment of such expenditure as aforesaid to the date when the Lessee shall enter upon the occupation and use of said line hereunder, and the Lessee shall pay the rental as hereby fixed from and after the date of assuming the said occupation and use in equal monthly instalments, the first of such instalments to be made at the expiration of one month from the beginning of such use and occupation.

6. Notwithstanding anything contained in these presents the Lessor shall have the right at any time and from time to time during the continuance of the said term to use for its own purposes, or to grant to any other Railway Company or Companies the right to use the whole or any portion of the said line of railway jointly with the Lessee, provided that before exercising such right the Lessor shall give to the Lessee not less than sixty days' notice in writing of its desire so to do, specifying in such notice the portion of said line upon which said right is to be exercised; and in case the Lessor shall exercise such right it shall abate to the Lessee in respect of the portion of the line so used, (*a*) such proportion of the maintenance and operating expenses thereof as the number of cars run over or upon any other such portion of said line of railway by the Lessor or by any other such Railway Company or Companies, or by both, as the case may be, shall bear to the whole number of cars run over or upon any of such portion of the said line of railway; (*b*) The proper aliquot portions, based upon the number of users of the said line or any part thereof pursuant to such notice, of that proportion of the rental payable by the Lessee hereunder which the number of miles of said line of railway specified in such notice shall bear to the total mileage of the said line.

7. Should the Lessor give notice of its desire to use or to grant to any other Railway Company or Companies the right to use jointly with the Lessee the whole or any portion of the said line of railway as hereinbefore provided the parties hereto shall thereupon enter into an agreement containing all such provisions for the joint maintenance and operation thereof, not inconsistent with the provisions hereof, as may be reasonably required under the circumstances; it being understood that so far as they are applicable the provisions of the said running rights agreement shall be adopted as the basis of, and be incorporated in, any agreement hereinafter made in pursuance of this paragraph.

8. In case the Lessor shall not when the said line is ready for use and occupation by the Lessee have paid all accounts in connection with such laying out and construction or shall not have delivered to the Lessee its accounts therefor or in

case the Lessee shall not have had the opportunity to examine, audit and accept such accounts, the Lessee may pay, subject to adjustment, such amount as shall be demanded or required by the Lessor as rental up to the beginning of such use and occupation and the Lessor shall furnish to the Lessee a detailed statement showing all expenditure incurred by the Lessor in laying out and construction of said line, and will allow proper inspection by the Lessee or its servants or agents in that behalf of all pay rolls, books, accounts and vouchers for the purpose of checking or verifying all such expenditure and shall afford proper facilities for such investigation, and upon the ascertainment by the parties of the true amount of such expenditure the accounts shall forthwith be adjusted accordingly, and in case the parties cannot agree as to the amount of such expenditure the same shall be determined under the provision for arbitration hereinafter contained.

9. The Lessor will also from time to time furnish to the Lessee detailed statements showing all expenditures incurred by the Lessor with the consent and approval of the Lessee in betterments as aforesaid and will allow proper inspection by the Lessee its servants or agents in that behalf of all pay rolls, books, accounts and vouchers for the purpose of checking or verifying all such expenditure for such betterments, and shall from time to time afford proper facilities for such investigation and in case the parties cannot agree as to the amount of any such expenditure the same shall be determined under the provision for arbitration hereinafter contained.

10. The Lessee shall be entitled to install home or distant signals or other apparatus pertaining to interlocking plants on the said demised premises and will be entitled at the expiration or other determination of the said term to remove same subject to restoring the said demised premises to the same plight and condition as before the erection of or installation thereon of any such signals or other apparatus.

11. The Lessee covenants with the Lessor as follows:

(*a*) That the Lessee will during the said term pay unto the said Lessor the rent hereby reserved in the manner hereinbefore mentioned without any deduction whatsoever.

(*b*) That the Lessee will pay all taxes, rates, duties and assessments whatsoever, whether municipal, parliamentary or otherwise, hereafter charged upon the said demised premises or upon the said Lessor on account thereof.

(*c*) That the Lessee will during the said term from time to time well and sufficiently repair, maintain and keep the said demised premises and all the Lessor's structures therein, including all fences and other appurtenances of the said line of railway, in as good a state of repair and condition as that portion of the Grand Trunk Railway System between Toronto and North Bay.

(*d*) That the Lessee will from time to time and at all times during the continuation of the said term observe and perform all the requirements of the law from time to time applicable to the operation of the said line, and will bear and pay all the expenses incurred in doing and performing all such acts, matters and things as may be necessary for the maintenance and operation of the said line of railway in conformity with the laws of the Dominion of Canada and of the Province of Ontario, respectively applicable thereto, and will indemnify and save harmless the Lessor of and from all costs, charges and expenses in the premises. Provided, however, that nothing herein contained shall be construed as imposing upon the Lessee any obligation to construct or provide at its own expenses any work or structure of a permanent character, or which can be regarded as a betterment, which is at any time during the said term directed or ordered by any Board or

authority duly constituted under the Laws of the said Dominion, or Province, or is directed or ordered by any Act of the Parliament of Canada or of the Legislature of the Province of Ontario, it being the understanding and intention that all material required to be provided, and work done, in connection with any such work or structure, shall be provided and done by and at the cost of the Lessor, and that interest at the rate of four and a half (4½) per cent. shall be thereafter paid thereon by the Lessee as additional rental hereunder irrespective of whether the Lessee shall or shall not have consented to such expenditure.

(*e*) That the Lessee, its successors and assigns shall not nor will during the said term assign, transfer or set over or otherwise by any act or deed permit the said premises or any of them to be assigned, transferred, set over or sublet unto any person or persons, company or companies whomsoever without the consent in writing of the Lessor its successors and assigns first had and obtained.

(*f*) The Lessee at the expiration or other determination of the said term will yield up the said line of railway, structures and appurtenances to the Lessor in as good plight and condition in all respects as the same shall be in at the beginning of the use and occupation thereof by the Lessee hereunder and as to any structure or other matter or thing covered by the Lessor's betterments as aforesaid in as good plight and condition as the same were on the completion of such respective betterments; and in case the said railway, structures and appurtenances or any part thereof shall not at the expiration or other determination of the term hereby granted be so delivered up in as good plight and condition as at the beginning of such occupation or as to any such betterments in as good plight and condition as at the completion thereof respectively the Lessee will pay to the Lessor in cash such sum as shall be sufficient to cover the cost and all incidental expenses of bringing the said railway structures and all appurtenances or such of them as shall not be in such plight and condition as aforesaid in all respects up to such standard; and in case the parties cannot agree upon the amount payable hereunder the same shall be fixed by arbitration as hereinafter provided, it being expressly agreed that the Lessee shall not be entitled to any payment or allowance in respect of any betterments of any kind made or claimed to be made by the Lessee, the true intention and meaning of these presents being that any betterments made by the Lessee shall be deemed and understood to be made for the Lessee's own benefit during the said term.

12. Provided always and it is hereby expressly agreed that if and whenever the rent hereby reserved, or any part thereof, shall be unpaid for sixty days after any of the dates on which the same ought to have been paid, although no formal demand shall have been made therefor, or in case of the breach of non-performance of any of the covenants or agreements herein contained on the part of the Lessee, its successors or assigns, then and in either or any of such cases it shall be lawful for the Lessor at any time thereafter into and upon the said demised premises or any part thereof in the name of the whole to re-enter and the same to have again, re-possess and enjoy as of its former estate therein, anything herein contained to the contrary notwithstanding.

13. The Lessor hereby covenants with the Lessee that the Lessee making the payments herein agreed to be made and performing, observing and fulfilling the covenants and the terms and conditions herein contained on the part of the Lessee to be observed, performed and fulfilled, shall from time to time and at all times hereafter during the said term have and enjoy the use and occupation of the said demised premises according to the terms and conditions herin contained without

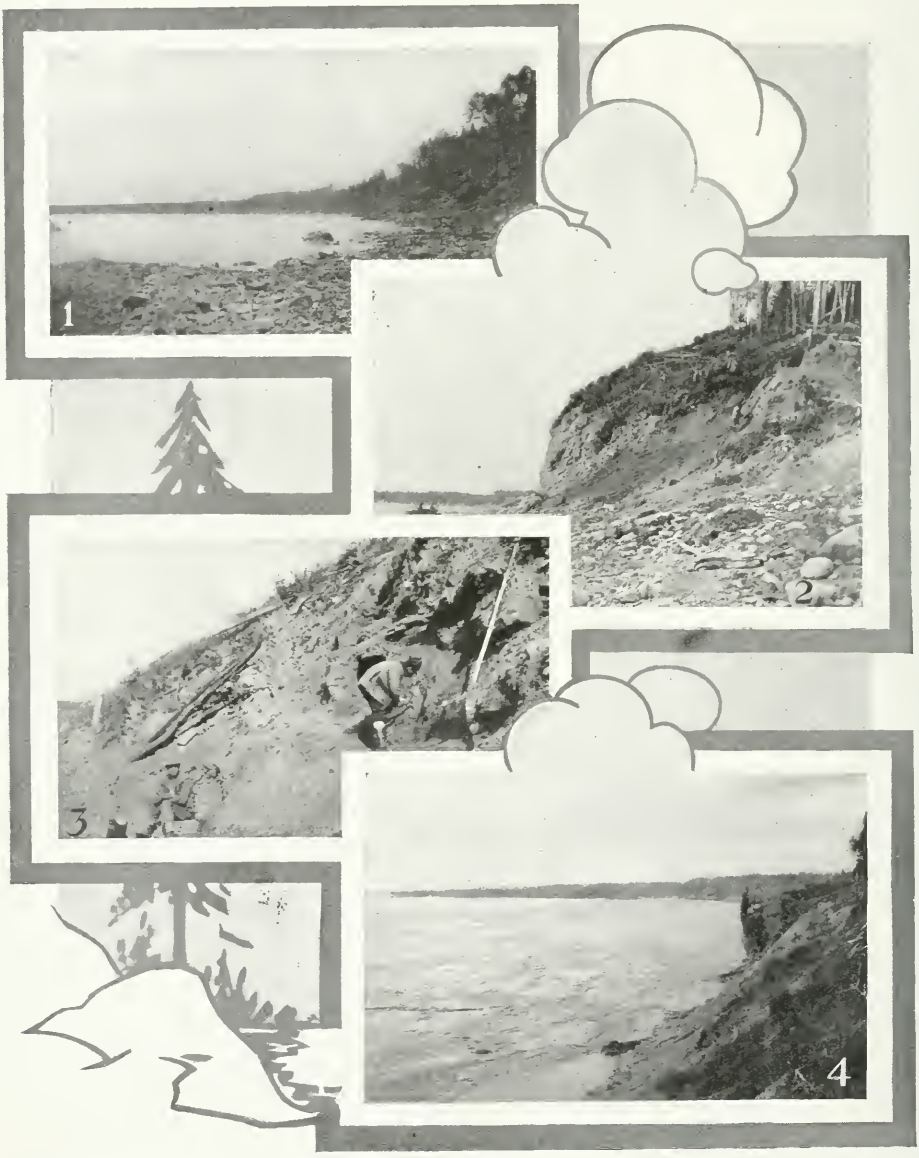
interruption or interference by the Lessor or any other party or parties whomsoever lawfully claiming under the Lessor.

14. In case of any notice to be given to or by the Lessor hereunder or in case of any demand to be made by or on behalf of or upon the Lessor hereunder the same, except when any other mode shall be indicated by the context, shall be deemed to have been duly given or received when given or received in writing by either the Chairman or Secretary of the Lessor for the time being; and in case of any consent required to be given by the Lessor the same shall, unless otherwise required by the context, be given by the Chairman for the time being of the Lessor, and shall for all purposes be binding upon the Lessor; and in case of any notice to be given to or by the Lessee hereunder or in case of any demand to be made by or on behalf of or upon the Lessee hereunder the same, except where any other mode shall be indicated by the context, shall be deemed to have been duly given or received when given or received in writing by either the First Vice-President or Treasurer of the Lessee for the time being; and in case of any consent required to be given by the Lessee the same shall, unless where otherwise required by the context, be given by the First Vice-President for the time being of the Lessee, and shall for all purposes be binding upon the Lessee.

15. Any difference which may at any time arise between the parties hereto respecting or by reason of any of the provisions of this agreement, or as to the true intent and meaning thereof, or respecting anything to be performed, ascertained or determined for the purpose of fully carrying out the same, or of any agreement for the joint maintenance and operation thereof or of any portion thereof, as contemplated by Clause 7 hereof, shall if not amicably adjusted be from time to time as the same arises submitted to arbitrators appointed as follows:—Each of the parties hereto shall appoint an arbitrator or referee, but should either party fail to appoint such arbitrator or referee within ten days after the receipt of written notice of the appointment by the other of its arbitrator or referee, then the arbitrator or referee first appointed may select another arbitrator or referee. The two so appointed shall select a third arbitrator or referee and their award or the award of the majority of them, made after due notice to both parties of the time and place of hearing the matter referred to and after affording full opportunity to the parties to be heard and to adduce evidence, shall be final and binding on both parties and they expressly agree to abide thereby. In case the two arbitrators or referees first appointed shall fail to appoint a third arbitrator within ten days after the appointment of the one last appointed then a third arbitrator or referee may be appointed by a Judge of the High Court of Justice for Ontario on the application of either party after ten days notice to the other. In case of the death or refusal to act of any arbitrator or referee, or if for any cause the office of any arbitrator or referee becomes vacant, his successor shall be appointed in the same manner as is provided for the appointment in the first instance unless the parties otherwise agree.

Pending the final disposition of the matter or matters submitted for arbitration each party shall continue to comply with and carry out the provisions of this agreement and the standing of either party towards the other shall be in no way affected by the matter in controversy.

16. These presents shall be binding upon and shall enure to the benefit of the successors and assigns of the parties respectively.



1. Mettagami River below Grand Rapids, South Shore.
2. Looking up Mattagami River from North Shore, showing iron exposure at foot of Grand Rapids.
3. Picking into a limonite exposure, Grand Rapids.
4. Looking up Mattagami River, showing Grand Rapids from north side of river.

IN WITNESS WHEREOF the parties hereto have hereunto set their respective corporate seals on the day and year first above written.

SIGNED, SEALED AND DELIVERED,
In the presence of

THE GRAND TRUNK RAILWAY COMPANY OF CANADA.

(Sgd.) A. T. MORTON.

(Sgd.) C. M. HAYES, *President.*

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

(Sgd.) J. L. ENGLEHART, *Chairman.*

(Sgd.) H. F. MACDONALD.

(Sgd.) A. J. MCGEE, *Sec-Treas.*

ARTICLES OF AGREEMENT made in duplicate this eighth day of May, in the year of our Lord, one thousand nine hundred and eleven.

BETWEEN:

GEORGE HUGHES, G. W. HENDERSON and JOHN ROBERTSON, carrying on business under the name, firm and style of ROBERTSON, HENDERSON and HUGHES, hereinafter called the Contractors,

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractors will at their own expense provide all and every kind of work, labor, materials, articles and things whatsoever for the due construction and completion of, and will well and duly build and complete in a perfect and workmanlike manner, a railway station at Thornloe, Ontario, in strict compliance with the specifications hereto annexed, and with the plans and drawings relating thereto, to the complete satisfaction of the Engineer, and will deliver the said station complete to the Commission on or before the first day of August, one thousand nine hundred and eleven; time agreed to be material and of the essence of this contract.

3. The Contractors shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer, and shall complete the work, including extras and alterations, and notwithstanding any delay or hindrance by the Commission, to the satisfaction of the Engineer by the date set out in the

last preceding paragraph or by such other date as on the written application of the Contractors for an extension of time, the Engineer may in writing substitute, and in default shall pay to the Commission by way of liquidated damages the sum of five dollars for each day which shall or may elapse after the date mentioned in the last paragraph or the date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be so completed and delivered.

4. The Engineer shall be at liberty at any time either before commencement or during the construction of the works or any portion thereof to order any extra work to be done and to make any change which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof, or any other things connected with the works whether or not such changes increase or diminish the work to be done, or the cost of doing the same, and the Contractors shall immediately comply with all requisitions of the Engineer in that behalf, and shall commence and complete the work so ordered to be done within the time specified by the Engineer: but the Contractors shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the Contractors, and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work, and as to the allowance to be made to the Contractors, or deducted from the Contractors in respect of any increase or diminution shall be final, and all the provisions of this contract shall apply to any changes, additions, deviations, or extra work in like manner, and to the same extent as the work tendered for, and no changes, additions, deviations or extra work shall annul or invalidate this contract, and no compensation shall be claimable by the Contractors for any loss of anticipated profits in respect of, or in consequence of, any change or deviation or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality, and his decision on all matters in dispute in respect to work shall be final, and no works or extra or additional works or changes shall be deemed to have been executed, nor shall the Contractors be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractors to be paid therefor.

6. The Contractors shall be at the risk of, and shall bear all loss or damage whatsoever which may occur to the works or any of them until the same be fully and finally completed and delivered up to and accepted by the Commission, and if any such loss or damage occur before such completion, deliverance and acceptance, the Contractors shall immediately at their own expense repair, restore and re-execute the work so damaged, so that the whole works or the respective parts thereof shall be completed within the time hereby limited.

7. The Contractors shall not at any time in connection with said work, or any matter arising out of, or connected with, this contract employ any person or persons in contravention of the Alien Labor Act, or the provisions of the Railway Act of Ontario, respecting the employment of Alien Labor, and shall pay to all workmen, laborers and servants employed in or about the work, such rates of wages as shall or may be currently payable to workmen, laborers and servants engaged in similar occupations in the district in which said work shall be performed, and shall be

responsible for the observance by all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole, absolute and final judge of these matters, being satisfied at any time that the Contractors or any sub-contractor has been guilty of any violation of any of the provisions of this clause, the Commission shall have the right from time to time, and as often as it shall be satisfied that any such violation has taken place, to withhold all payments from the Contractors until such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased, and until such amends as the Commission shall require shall have been made for all such violations, and on being notified by the Commission of any such violation, it shall be the duty of the Engineer to withhold all certificates from the Contractors until the Commission shall be satisfied that such violation has ceased, and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. In case the Contractors shall make default or delay in diligently continuing to execute or advance any of the works to be performed under this contract to the satisfaction of the Engineer, or shall make default in commencing any portion or portions of the work or complete same within the periods specified by the Engineer, as provided for in section 3 of this contract, and such default and delay shall continue for six days after notice in writing shall have been given in writing by the Engineer to the Contractors requiring them to put an end to any such default or delay, or in case the Contractors shall become insolvent or shall without the written consent of the Commission make an assignment of this contract, or shall without the written consent of the Engineer make any sub-contract, or neglect personally to superintend the works, then and in any of such cases the Commission may take all the work done under this contract out of the contractors' hands and employ such means as it may see fit to complete the work embraced in the contract, and in such case the Contractors shall have no claim for any further payment in respect of the work performed, but all things done and means employed under this section by the Commission shall be as binding on the Contractors as if the things done and means employed had been done and employed by them under this contract, but the Contractor shall nevertheless remain liable for all loss or damage which shall be suffered by the Commission by reason of the non-completion by the Contractors of the works, and no question or claim shall be raised or made by the Contractors by reason or on account of the ultimate cost of the work so taken over proving greater than in the opinion of the Contractors it should have been, and all materials, articles and things whatsoever, and all machinery and other plant provided by the Contractors for the purposes of the work shall remain and be considered as the property of the Commission for the purposes of the said works, and the Commission may at its option sell or otherwise dispose of the whole or a portion of such materials, articles and things whatsoever, machinery and other plant, and may retain the proceeds of such sale or disposition or a sufficient part thereof on account of or in satisfaction of any loss which it may have sustained by reason aforesaid.

9. As security for the due performance, execution and completion of the contract by the Contractors, the Contractors shall upon the execution hereof, deposit with the Commission the sum of four Hundred and seventy-two dollars and thirty cents.

10. Neither the acceptance nor the payment for the said station by the Commission shall be construed as any waiver of the obligations of the Contractors with reference thereto.

11. The Commission in consideration of the premises covenants with the Contractors that the Contractors from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractors' part, intended to be performed and fulfilled, will be paid for, and in respect of the said station so completed as aforesaid the sum of four thousand seven hundred and twenty-three dollars, and for and in respect of all three inch pine planks and joists used in the platform of said station a sum equal to forty-five dollars per thousand feet board measure together with fifteen cents per lineal foot for all 8 by 12 in cedar and mud sills, all as specified by the Engineer, subject to such deductions or additions as shall be certified by the Engineer; payments to be made from time to time on progress certificates of the Engineer, and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of said work.

12. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract, including the said specifications and the plans and drawings, or the tender of the said Contractors for said work or from any position or situation of the parties at any time, it being clearly understood and agreed that the express covenants, agreements and stipulations contained in these presents and the said specifications, plans and drawings, are and shall be the only contracts, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded: it being further expressly agreed that the said specifications and these presents are to be read together, and in case of any discrepancy between these presents and anything contained in such specifications, the provisions of these presents shall govern, and in case of any discrepancy appearing at any time between the specifications, plans and drawings or any of them, the Contractors shall follow such one of them as the Engineer shall in writing direct.

IN WITNESS WHEREOF this agreement has been duly signed, sealed and executed by the said Contractors, and duly executed by the said Commission under its corporate seal and the hands of its Chairman and Secretary.

SIGNED, SEALED AND DELIVERED,
In the presence of

(Sgd.) R. Y. Angus.

(Sgd.) Geo. Hughes.

L. W. Henderson.

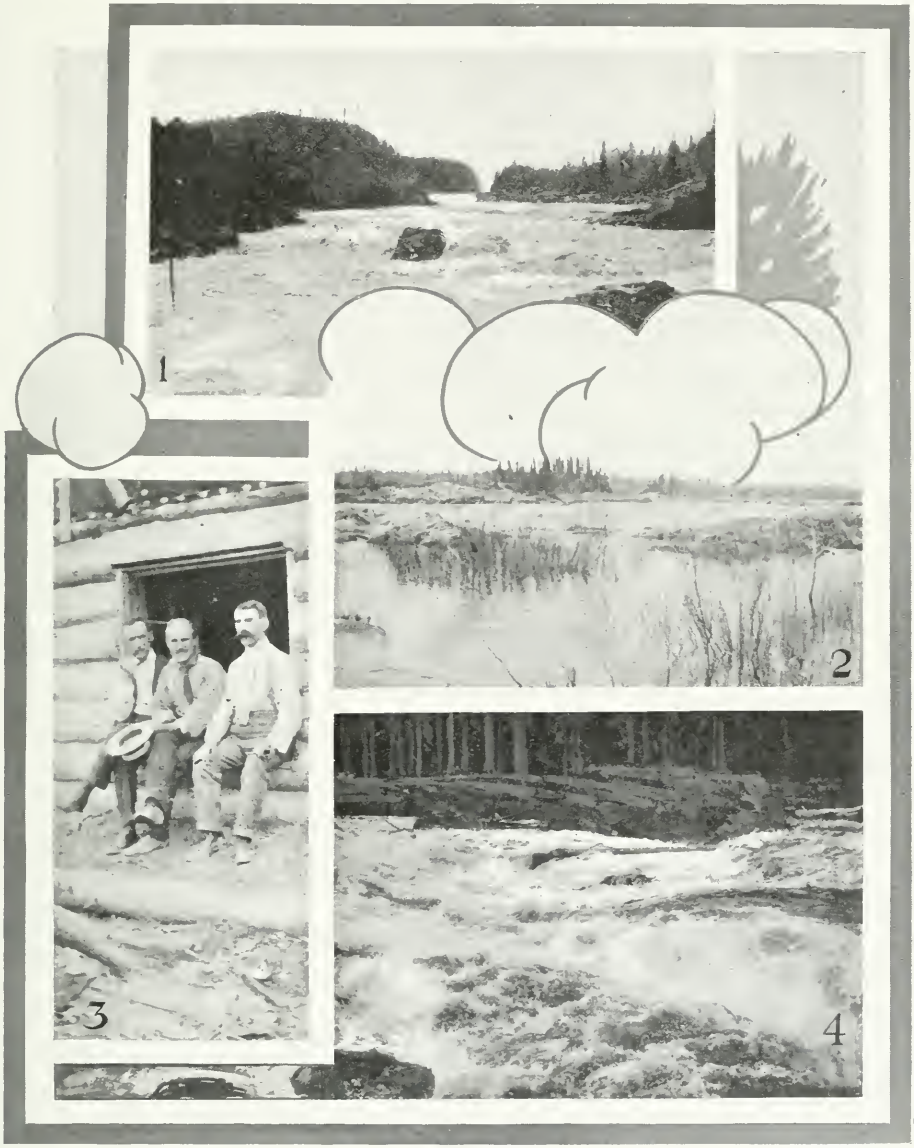
John Robertson.

Temiskaming and Northern Ontario Railway Commission.

(Sgd.) J. L. Englehart, *Chairman.*

A. J. McGee, *Sec-Treas.*

ARTICLES OF AGREEMENT made (in duplicate) this sixteenth day of June, in the year of our Lord one thousand nine hundred and eleven.



1. Foot of Rapids at Wagawdawin.
2. Mattagami River, showing Landslides.
3. Commissioner Dane at Driftwood.
4. A portion of Cypress Falls, on Mattagami River.

BETWEEN:

WILLIAM N. SNYDER, OF THE TOWN OF NORTH BAY, in the District of Nipissing, hereinafter called the Contractor.

and

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Commission.

WITNESSETH:

1. In this contract the word "work" or "works" shall, unless the context requires a different meaning, mean the whole of the work and materials, matters and things required to be done, furnished and performed under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the work.

2. The Contractor will at his own expense provide all and every kind of work, labor, materials, articles and things whatsoever, for the due construction and completion, and will well and duly build and complete in a perfect and workmanlike manner a railway passenger station at Falls of the Iroquois, Ontario, in strict compliance with the specifications hereto annexed and with the plans and drawings relating thereto, to the complete satisfaction of the Engineer, and will deliver the said station complete to the Commission on or before the fifteenth day of September, one thousand nine hundred and eleven; time being agreed to be material and of the essence of this contract.

3. The Contractor shall forthwith commence work and shall proceed diligently therewith at the rate required by the Engineer, and shall complete the work, including extras and alterations, and notwithstanding any delay or hindrance by the Commission: to the satisfaction of the Engineer by the date set out in the last preceding paragraph, or by such other date as on the written application of the Contractor for an extension of time the Engineer may in writing subsitute, and in default shall pay to the Commission by way of liquidated damages the sum of five dollars for each day which shall or may elapse after the date mentioned in the last paragraph or date expressly substituted therefor in manner aforesaid by the Engineer until the whole work shall be so completed and delivered.

4. The Engineer shall be at liberty at any time either before commencement, or during construction of the works or any portion thereof to order any extra work to be done, and to make any changes which he may deem expedient in the dimensions, character, nature, location or position of the works or any part or parts thereof, or any other things connected with the works whether or not such changes increase or diminish the work to be done, or the cost of doing the same, and the Contractor shall immediately comply with all requisitions of the Engineer in that behalf, and shall commence and complete the work so ordered to be done within the time specified by the Engineer, but the Contractor shall not make any change in or addition to or omission or deviation from the work and shall not be entitled to any payment for any change, addition, deviation or any extra work unless such change, addition, omission, deviation or extra work shall have been first directed in writing by the Engineer and notified to the Contractor, and the decision of the Engineer as to whether any such change or deviation increases or diminishes the work, and as to the allowance to be made to the Contractor

or deducted from the Contract in respect of any increase or diminution shall be final, and all the provisions of this contract shall apply to any changes, additions, deviations or extra work in like manner and to the same extent as the work tendered for and no changes, additions, deviations or extra work shall annul or invalidate this contract, and no compensation shall be claimable by the Contractor for any loss of anticipated profits in respect of or in consequence of any change or deviation or omission from the works.

5. The Engineer shall be the sole judge of the work and material in respect of both quantity and quality and his decision of all matters in dispute in respect to work shall be final and no works or extra or additional works or changes shall be deemed to have been executed nor shall the Contractor be entitled to payment for the same unless the same shall have been directed in writing as hereinbefore provided and executed to the satisfaction of the Engineer as evidenced by his certificate in writing, which certificate shall be a condition precedent to the right of the Contractor to be paid therefor.

6. The Contractor shall be at the risk and shall bear all loss or damage whatsoever which may occur to the works or to any of them until the same be fully and finally completed and delivered up to and accepted by the Commission, and if any such loss or damage occur before such time for completion, delivery and acceptance, the Contractor shall immediately at his own expense repair, restore and re-execute the work so damaged so that the whole works or the respective parts thereof shall be completed within the time hereby limited.

7. The Contractor shall not at any time in connection with said work or any matter arising out of or connected with this contract, employ any person or persons in contravention of the Alien Labor Act or the provisions of the Railway Act of Ontario, respecting the employment of alien labor, and shall pay to all workmen, laborers and servants employed in or about the work such rates of wages as shall or may be currently payable to workmen, laborers and servants engaged in similar occupations in the district in which said work shall be performed and shall be responsible for the observance of all sub-contractors on their part of the provisions of this clause, and in the event of the Commission, who shall be the sole, absolute and final judge of these matters, being satisfied at any time that the Contractor or any sub-contractor has been guilty of any violation of any of the provisions of this clause, the Commission shall have the right from time to time, and as often as it shall be satisfied that any such violation has taken place, to withhold all payments from the Contractor until such violation of any of the provisions of this clause shall in the opinion of the Commission have ceased, and until such amends as the Commission shall require shall have been made for all such violations and on being notified by the Commission of any such violation it shall be the duty of the Engineer to withhold all certificates from the Contractor until the Commission shall be satisfied that such violation has ceased and until amends shall have been made to the satisfaction of the Commission as aforesaid.

8. In case the Contractor shall make default or delay in diligently continuing to execute or advance any of the works to be performed under this contract to the satisfaction of the Engineer, or shall make default in commencing any portion or portions of the work or complete same within the periods specified by the Engineer, as provided for in section 3 of this contract, and such default and delay shall continue for six days after notice in writing shall have been given by the Engineer to the Contractor requiring him to put an end to such default

or delay, or in case the contractor shall become insolvent or shall without the written consent of the Commission make an assignment of this contract, or shall without the written consent of the Engineer make any sub-contract, or neglect personally to superintend the works, then and in any of such cases the Commission may take all the work done under this contract out of the Contractor's hands and employ such means as it may see fit to complete the work embraced in the contract, and in such case the Contractor shall have no claim for any further payment in respect of the work performed, but all things done and means employed under this section by the Commission shall be as binding on the Contractor as if the things done and means employed had been done and employed by him under this contract, but the Contractor shall nevertheless remain liable for all loss or damage which shall be suffered by the Commission by reason of the non-completion by the Contractor of the works, and no question or claim shall be raised or made by the Contractor by reason or on account of the ultimate cost of the work so taken over proving greater than in the opinion of the Contractor it should have been, and all materials, articles and things whatsoever, and all machinery and other plant provided by the Contractor for the purposes of the works shall remain and be considered as the property of the Commission for the purposes of the said works, and the Commission may at its option sell or otherwise dispose of the whole or a portion of such materials, articles and things whatsoever, machinery and other plant, and may retain the proceeds of such sale or disposition or a sufficient part thereof on account of or in satisfaction of any loss which it may have sustained by reason aforesaid.

9. As security for the due performance, execution and completion of the contract by the Contractor, the Contractor shall upon the execution hereof deposit with the Commission the sum of seven hundred and three dollars.

10. Neither the acceptance nor the payment for the said passenger station by the Commission shall be construed as any waiver of the obligations of the Contractor with reference thereto.

11. The Commission in consideration of the premises covenants with the Contractor that the Contractor from time to time and in all respects having fulfilled and performed the provisions of this contract on the Contractor's part intended to be fulfilled and performed will be paid for and in respect of the said passenger station so completed as aforesaid (including the system of hot water heating) the sum of seven thousand and thirty dollars, and for and in respect of all three inch Tamarack planks and joists used in the platform of said passenger station, a sum equal to twenty-nine dollars and fifty cents per thousand feet board measure, and for and in respect of all 8 by 12 in. cedar mud sills used in the platform of said passenger station a sum equal to twenty-five dollars per thousand feet board measure; all as specified by the Engineer, subject to such deductions or additions as shall be certified by the Engineer: payments to be made from time to time on progress certificates of the Engineer, and the final payment to be made within forty days after the date of the Engineer's final certificate of the completion of said work.

12. It is distinctly agreed that no implied contract of any kind whatsoever by or on behalf of the Commission shall arise or be implied from anything contained in this contract, including the said specifications and the plans and drawings or the tender of the said Contractor for said work, or from any position or situation of the parties at any time, it being clearly understood and agreed that the express covenants, agreements and stipulations contained in these presents and in the said specifications, plans and drawings are and shall be the only con-

tract, covenants, agreements and stipulations upon which any right of action against the Commission is to be founded; it being further expressly agreed that the said specifications and these presents are to be read together, and in case of any discrepancy between these presents and anything contained in such specifications, the provisions of these presents shall govern, and in case of any discrepancy appearing at any time between the specifications, plans and drawings or any of them, the Contractor shall follow such one of them as the Engineer shall in writing direct.

IN WITNESS WHEREOF this agreement has been duly signed, sealed and executed by the said Contractor, and duly executed by the said Commission under its corporate seal, and the hands of its Chairman and Secretary.

SIGNED, SEALED AND DELIVERED,
In the presence of .

(Sgd.) R. Y. Angus.

(Sgd.) William N. Snyder.

(Seal)

Temiskaming and Northern Ontario Railway Commission.

(Seal)

(Sgd.) B. L. Thompson.

(Sgd.) J. L. Englehart, *Chairman*

(Sgd.) A. J. McGee, *Sec-Treas.*

THIS INDENTURE MADE (in duplicate) the first day of July, A. D. 1911.

IN PURSUANCE OF THE SHORT FORMS OF LEASES ACT.

Between:

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Lessor,

and

THE DOMINION EXPRESS COMPANY, hereinafter called the Lessee.

WITNESSETH that in consideration of the rents, covenants and conditions hereinafter respectively reserved and contained on the part of the said Lessee, its successors and assigns to be respectively paid, observed and performed, the Lessor hath demised and leased, and by these presents doth demise and lease unto the said Lessee its successors and assigns, ALL AND SINGULAR the room in the station building of the Lessor at Porcupine, designated on the annexed blue print by the words "Space to be leased to Dominion Express Co.," and being approximately forty-four feet in length by twenty-four feet in width.

TO HAVE AND TO HOLD the said demised premises for four months from the date hereof and thereafter, until either party shall give to the other not less than two months' notice putting an end to this lease, at the rental of thirty dollars per month, payable monthly in advance on the first day of each month.

THE said Lessee covenants with the said Lessor to pay rent, and to pay taxes and to repair reasonable wear and tear and damage by fire, lightning and tempest only excepted.

AND will not assign or sub-let without leave, and that it will leave the premises in good repair, reasonable wear and tear and damage by fire, lightning and tempest only excepted.

PROVIDED that the Lessee may remove its fixtures.

PROVISO for re-entry by the Lessor on non-payment of rent or non-performance of covenants.

PROVIDED and it is hereby expressly agreed that in no event shall the Lessor be liable to the Lessee for any damage done by the Lessor, its servants or employees or any of them, to any fixtures upon the said lands, or to any moneys, goods, wares or merchandise from time to time stored or kept in said room or in or about said station premises, whether such damage shall be done, or shall happen by reason of negligence or otherwise howsoever.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals, and under the hands of their respective officers in that behalf.

WITNESS:

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

(Sgd.) B. L. THOMPSON.

(Sgd.) J. L. ENGLEHART, *Chairman*

(Seal)

(Sgd.) A. J. MCGEE, *Sec-Treas.*

(Sgd.) DOMINION EXPRESS COMPANY.

(Seal)

(Sgd.) J . E. COULTER.

by W. S. STOUT, *Pres. and Gen. Man.*

THIS INDENTURE made (in duplicate) the first day of September, 1911.

IN PURSUANCE OF THE SHORT FORMS OF LEASES ACT.

BETWEEN:

THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, hereinafter called the Lessor.

and

THE DOMINION EXPRESS COMPANY, hereinafter called the Lessee.

WITNESSETH that in consideration of the rents, covenants and conditions hereinafter respectively reserved and contained on the part of the said Lessee, its successors and assigns to be respectively paid, observed and performed, the Lessor hath demised and leased, and by these presents doth demise and lease unto the

said Lessee its successors and assigns. ALL AND SINGULAR the room in the Station Building of the Lessor at South Porcupine, designated on the annexed blue print by the word "Express" and being approximately fifty feet in length by twenty-four feet in width.

TO HAVE AND TO HOLD the said demised premises for two months from the date hereof and thereafter, until either party shall give to the other not less than two months' notice putting an end to this lease, at the rental of thirty-five dollars per month, payable monthly in advance on the first day of each month.

THE said Lessee covenants with the said Lessor to pay rent, and to pay taxes and to repair reasonable wear and tear and damage by fire, lightning and tempest only excepted.

AND will not assign or sublet without leave, and that it will leave the premises in good repair, reasonable wear and tear and damage by fire, lightning and tempest only excepted.

PROVIDED that the Lessee may remove its fixtures.

PROVISO for re-entry by the Lessor on non-payment of rent or non-performance of covenants.

PROVIDED and it is hereby expressly agreed that in no event shall the Lessor be liable to the Lessee for any damage done by the Lessor, its servants or employees, or any of them to any fixtures upon the said lands, or to any goods, wares or merchandise from time to time stored or kept in said room, or in or about said station premises, whether such damage shall be done or shall happen by reason of negligence or otherwise howsoever.

IN WITNESS WHEREOF the said parties have caused these presents to be executed under their respective corporate seals and under the hands of their respective officers in that behalf.

WITNESS:

TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION.

(Sgd.) B. L. THOMPSON.

(Sgd.) J. L. ENGLEHART, *Chairman.*
(Seal)

(Sgd.) A. J. McGEE, *Sec-Treas.*

(Sgd.) DOMINION EXPRESS COMPANY.
(Seal)

(Sgd.) J. E. COULTER.

(Sgd.) by W. S. STOUT,
Pres. and Gen. Man.

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Third and Fourth Annual Reports

OF THE

HYDRO-ELECTRIC POWER COMMISSION

OF THE

PROVINCE OF ONTARIO

FOR YEAR ENDED OCTOBER 31st

1911

PRINTED BY ORDER OF

THE LEGISLATIVE ASSEMBLY OF ONTARIO

TORONTO:
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1912

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TORONTO

To His Honour Sir John Morison Gibson, K.C.M.G.,
Lieutenant-Governor of Ontario.

May it Please Your Honour:

The undersigned has the honour to present to Your Honour the Third and Fourth Annual Report of the Hydro-Electric Power Commission of Ontario for the fiscal year ending October 31st, 1911.

Respectfully Submitted.

ADAM BECK,
Chairman.

Toronto, February 1st, 1912.

Honourable Adam Beck,
Chairman, Hydro-Electric Power Commission,
Toronto, Ont.

Sir,—I have the honour to transmit herewith the Third and Fourth Annual Reports of the Hydro-Electric Power Commission of Ontario for the fiscal year ended October 31st, 1911.

I have the honour to be,

Sir,

Your obedient servant,

W. W. POPE,
Secretary.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO

HON. ADAM BECK, London, Chairman.
HON. JOHN S. HENDRIE, C.V.O., Hamilton, Commissioner.
W. K. McNAUGHT, Esq., M.P.P., Toronto, Commissioner.

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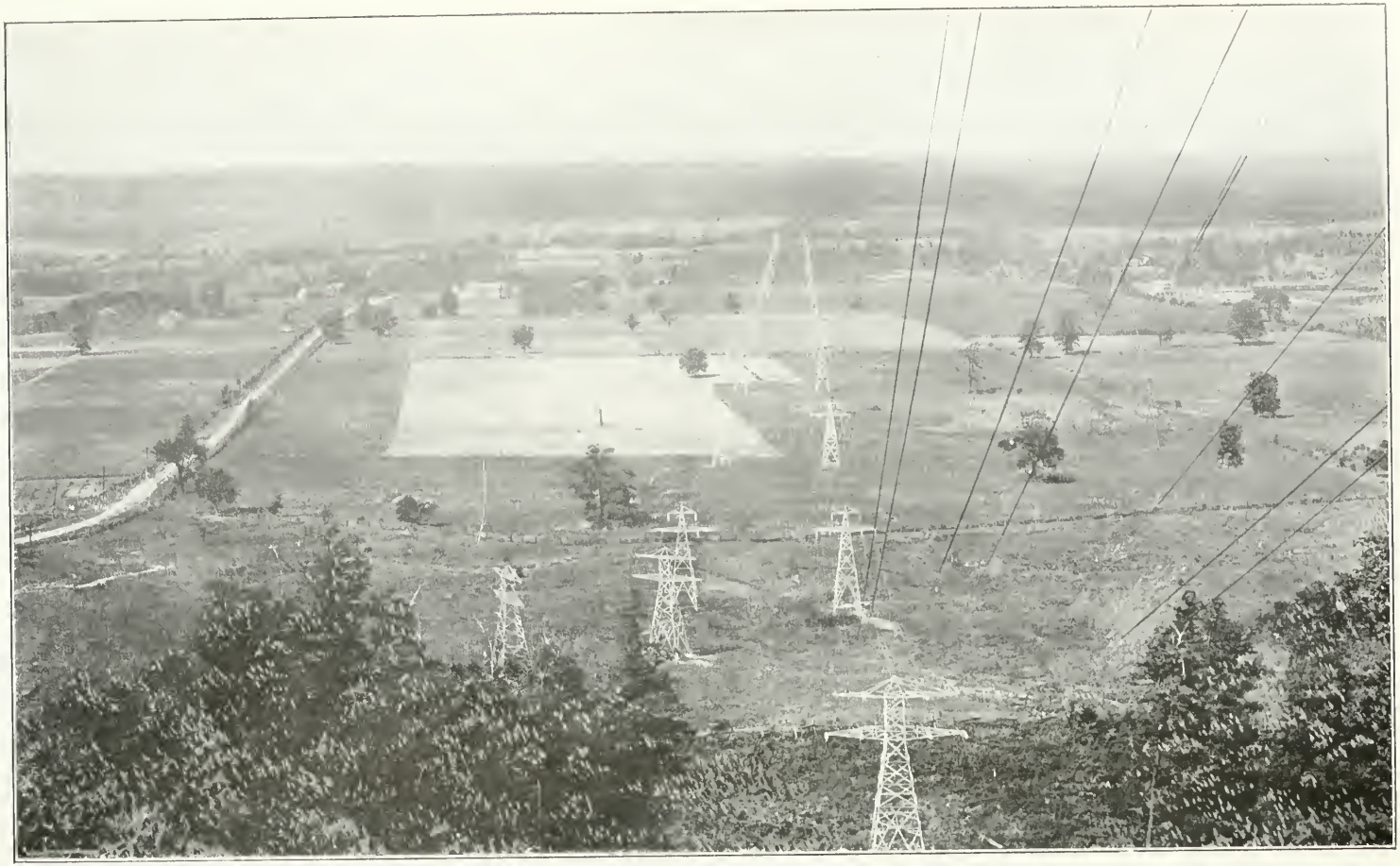


Transmission Lines in the Dundas Valley.

THE THIRD AND FOURTH ANNUAL REPORTS

OF THE

Hydro-Electric Power Commission.

CHAPTER I.

ACTS AND AGREEMENTS.

ACTS.

The following Acts concerning the Hydro-Electric Power Commission were assented to by the Legislature of the Province of Ontario during the Sessions of 1910 and 1911:—

An Act respecting the Hydro-Electric Power Commission of Ontario.

An Act to provide for the local distribution of Electric Power.

An Act to amend the Power Commission Act.

An Act to confirm certain contracts entered into by the Hydro-Electric Power Commission of Ontario.

An Act respecting The Hydro-Electric Power Commission of Ontario.

(10 Ed. VII., chap. 16.)

Assented to 19th March, 1910.

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

Powers of entry for construction of line, etc., under 9 Edw. VII., c. 19, s. 10.

1. It is declared that Section 10 of the *Power Commission Amendment Act*, 1909, conferred upon "The Hydro-Electric Power Commission of Ontario" absolute authority without the consent of the owners or persons interested and without any pre-requisite or preliminary action or proceeding whatsoever, and without any other sanction or authority, to enter upon any lands required for the purpose of constructing, erecting, maintaining and operating thereon the transmission lines and works in connection therewith referred to in said section and to retain possession thereof for such time as the Commission should think proper and under agreement with the owners or

persons interested or without their consent and without any prerequisite or other sanction or authority whatsoever to take and acquire such right, title, privilege, easement, or interest in, over, upon or in respect of or relating to said lands as to the Commission might seem desirable or expedient.

Right of owner to compensation.

2. Whenever the Commission acts or has acted under the authority conferred by said section 10 compensation shall be made to the owners or persons interested for all damage to said lands necessarily resulting from the exercise of the powers granted to the Commission by said section. Provided always that in fixing such compensation regard shall in all cases be had to the nature and extent of the estate, right, privilege, easement or interest which the Commission decides to take and acquire in, over, upon or in respect of the said lands, and any assessment of damage shall be based thereon. The claimant shall present his claim for damages to the Commission in the manner provided for presentation of claims under Section 40 of *The Ontario Public Works Act*, and the provision of said Section 40 shall apply in respect of such claim, and in the event of no agreement being arrived at the amount of such damages may be determined by arbitration under *The Ontario Public Works Act*, in which case the provisions respecting arbitration contained in the said Act shall, *mutatis mutandis*, apply, or should such claimont elect by notice in writing within one month from the entry on the taking possession by the Commission, the amount of such compensation shall be determined in the manner provided by *The Arbitration Act* and subject to the provisions thereof.

9 Edw. VII, c. 35.

Payment or disposition of compensation.

3. When the Commission has agreed on the purchase price or rental, or the amount of compensation has been determined by arbitration under either of the said Acts, all the provisions of *The Ontario Public Works Act* as to payment or other disposition of the moneys payable in respect of the estate, right, title or interest purchased, leased or taken by the Commission and as to the vesting of such estate, right, easement or interest, and the title thereto, in the Commission shall *mutatis mutandis* apply.

7 Edw. VII, c. 19, s. 22, amended.

4. Section 22 of *The Power Commission Act* is amended by substituting for sub-section 4 the following sub-section:—

Orders and regulations of Commission.

(4) The Commission may from time to time make orders and regulations as to the construction, operation, protection, and inspection of the works, plant, machinery, appliances and equipment for transmission and distribution of electrical power by municipal corporations, and railway, power, or transmission companies.

Penalty for disobedience to order of Commission.

(5) Any municipal corporation, company or person neglecting or refusing to obey and carry out the order or direction of the Commission or the member thereof before whom the complaint was heard, or to comply with any order or regulation under the next preceding sub-section, in addition to any other

liability, shall forfeit to His Majesty for the uses of the Province the sum of $100 for every day during which such refusal or neglect shall continue. 6 Edw. VII. c. 15, s. 19.

5. Section 2 of *The Power Commission Amendment Act, 1909,* is amended by adding thereto the following clauses: 9 Edw. VII., c. 19, s. 2, amended.

(*f*) By adding the Corporations of the City of Hamilton and the Town of Tillsonburg as parties of the second part, and inserting in said schedule the word "Hamilton" in Column 1 and in Columns 2, 5, 6, and 7, opposite that word, the figures "1,000," "17.92," "84,384," and "3,620," and the word "Tillsonburg" in Column 1, and in Columns 2, 5, 6, and 7, opposite that word, the figures "500," "33.00," "84,713," and "6,892." City of Hamilton and Town of Tillsonburg added as parties to agreement.

(*g*) By striking out paragraphs 1 (*b*), 2 (*b*), 10, and the last sentence of 11, and substituting thereto respectively:— Agreement with municipalities

1. (*b*) On June 1st 1910, or on any earlier date on which the Commission may be prepared to supply the same after one month's notice from the Corporation to supply 1,000 horse power to the Corporation within the limits thereof, ready for distribution, at approximately the voltage set forth in Column 4 of the schedule hereto, and approximately 25 cycles per second.

2. (*b*) The Corporation of the City of Hamilton shall not be bound to take power exclusively from the Commission, and shall at all times be at liberty to take power from any other source, or generate power, and the power supplied by the Commission may be used by the Corporation of the City of Hamilton for any purpose, except as set forth in paragraph 11 hereof.

10. (*a*) The Commission shall at least annually adjust and apportion the amounts payable by Municipal Corporations for such power and such interest, sinking fund, line loss, and cost of operating, maintaining, repairing, renewing and insuring the line and works "rateably according to the distance from Niagara Falls and amount of power supplied to the Corporation of the City of Hamilton, subject to the provisions of paragraphs 10 (*b*) and (*c*)."

(*b*) The Municipal Corporation of the City of Hamilton shall be entitled, in respect of the said amounts payable by the said Municipal Corporation, to any reduction that may be due to increase in the quantity of power supplied to the said Municipal Corporation.

(*c*) The said Municipal Corporations shall not be entitled, in respect of said amounts, to any reduction that may be due to increase in the quantity of power supplied by the Commission to any other corporations or parties.

(*d*) At any time prior to the 31st December, 1910, the said Municipal Corporation may agree to insert paragraphs 2 (*b*) and 13 (*a*) and (*b*) of the agreement of May 4th, 1908, in this agreement, and thereafter paragraph 10 (*b*) of this agreement shall be of no effect, and the said Municipal Corporations shall be entitled to all rights and benefits of said agreement of May 4th, 1908, as if originally a party thereto.

No power shall be supplied by any municipal corporation for the purposes of any railway, or for distribution other than by the municipality, without the written consent of the Commission.

(*h*) By adding to paragraph 4:

Said meters shall be located by the Commission so as to prevent discrimination in the measurement of the quantity of power supplied to each municipality.

(*i*) By striking out paragraph 13 and numbering paragraphs 14 and 15, 13 and 14.

(*j*) The variations in the preceding sub-sections (*g*), (*h*) and (*i*) shall apply to the contract with the Corporation of the City of Hamilton only.

By-laws of Hamilton and Tillsonburg confirmed.

6. By-law numbered 906 of the said Corporation of the City of Hamilton, and by-law numbered 605 of the Town of Tillsonburg, are declared to be sufficient, legal, valid, and binding for the purpose thereof, and the contract executed by the said Corporations and the Commission shall be legal, valid and binding on the parties thereto, notwithstanding that the provisions of the first sentence of paragraph 11 have not been fully complied with.

An Act to provide for the Local Distribution of Electrical Power.

(1 Geo. V., chap. 14.)

Assented to 24th March, 1911.

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

Short title.

1. This Act may be cited as "*The Power Commission Act, 1911.*"

Interpretation.

2. In this Act

"The Commission."

(*a*) "The Commission" shall mean the Hydro-Electric Power Commission of Ontario:

"Corporation."

(*b*) "Corporation" shall mean the Corporation of a city, town, township or village municipality.

Application for supply of power to municipality for use of particular ratepayer.

3. Any one or more of the ratepayers in a municipality, the corporation of which has not entered into a contract with the Commission under *The Power Commission Act*, may apply to the Corporation to obtain from the Commission a supply of electrical power or energy for the use of such ratepayer or ratepayers for lighting, heating and power purposes or for any of such purposes.

Form of application.

4. The application shall be in writing signed by the applicants and shall state the lots or parts of lots owned or occupied by each of them respectively, and the purposes for which the electrical power or energy is required.

Request for supply.

5. The Council of the Corporation shall thereupon request The Commission to supply the electrical power or energy for the purposes mentioned in the application.

Estimates, etc., to be furnished by Commission.

6. Upon such request The Commission shall furnish to the Corporation an estimate of the maximum cost per horse power at which the electrical power or energy will be supplied at the point of development or of its delivery to The Commission and an estimate of the cost of constructing and providing transmission lines by means of which the amount of electrical power or energy required is to be supplied and of maintaining the same and may furnish to the corporation plans and specifications of the works, plant, machinery and appliances necessary for the distribution of such power or energy by the corporation to the applicants, and an estimate of the cost thereof and such other information as The Commission may think advisable.

By-law authorizing contract with Commission.

7. Within one month after the delivery of the statement and estimates mentioned in the next preceding section, the Council shall, at a special meeting called for that purpose, and of which notice shall have been given to each of the applicants, consider the statement and estimates furnished by The Commission and with the consent of the applicants or such of them as shall signify their desire to proceed to enter into a contract for the supply of electrical power or energy by The Commission, the Corporation without submitting the same to a vote of the electors and without any of the other formalities required in the case of a By-law passed under *The Power Commission Act*, may pass a By-law for entering into a Contract with The Commission for the supply of the electrical power or energy required by the applicants, and may enter into a contract with the Commission for that purpose.

7 Edw. VII., c. 19.

Application of 7 Edw. VII., c. 19.

8. All the provisions of *The Power Commission Act* as to the annual payments to be made by corporations which have entered into contracts with The Commission shall apply to a contract entered into under this Act.

Admission of further subscribers.

9. The contract may provide for the admission from time to time of further subscribers, or for the making of a contract between the Corporation and The Commission under *The Power Commission Act*, and the readjustment thereupon of the amounts payable annually to The Commission and of the amounts payable annually by the subscribers in

such manner as may be agreed upon or determined by arbitration or otherwise.

Issue of debentures.

10. The By-law may provide for the issue of debentures of the municipality payable within twenty years from the issue thereof to meet the cost of construction and instalment of the works, plant, machinery and appliances necessary for the distribution of the electrical power or energy, and for the levying of a special rate for payment of principal and interest in the manner provided by *The Consolidated Municipal Act, 1903*.

3 Edw. VII., c. 19.

Amount payable by applicants.

11. The amount payable by the applicants in each year for the electrical power or energy supplied to them, shall be sufficient to recoup the municipality the amount required to pay the principal and interest of any debentures issued and to meet the annual payments required to be made to the Commission as provided by *The Power Commission Act*. and in default of payment any amount due to the corporation under this section may be entered on the collector's roll and collected in the same manner as other taxes.

7 Edw. VII., c. 19.

Contracts with Police Trustees.

12.—(1) The trustees of a Police Village shall for the purposes of *The Power Commission Act*. be deemed a municipal corporation, and subject to the provisions of this Act, may exercise all the powers conferred upon municipal corporations by *The Power Commission Act*. and may enter into a contract with the Commission for the supply of electrical power or energy as provided by that Act.

Submission of By-law in Police Villages.

(2) The council of the township, or the councils of the townships in which the Police Village is situate, upon the request of the Police Trustees, shall submit the By-law, provided for by section 13 of *The Power Commission Act*, to a vote of the electors of the Police Village qualified to vote thereon. and shall upon the like request issue debentures as provided by the said Act and levy and collect a special rate upon the rateable property in the Police Village for the payment thereof.

Township to levy rates.

(3) The council of the township in which the Police Village or any part thereof is situate, shall annually levy by special rate upon the rateable property in the Police Village, or in that part of the Police Village situate in the township, the amounts required to meet the payments to be made to The Commission.

An Act to amend The Power Commission Act.

(1 Geo. V., chap. 15.)

Assented to 24th March, 1911.

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

Short title.

1. This Act to be cited as *The Power Commission Amendment Act, 1911*.

2. In this Act

Interpretation "Highway."

(*a*) "Highway" shall include street, lane, road square or other public passage, and "Highways" shall have a meaning corresponding to that of highway.

"The Commission."

(*b*) "The Commission" shall mean The Hydro-Electric Power Commission of Ontario.

"Works."

(*c*) "Works" shall include wires, pipes, poles, conduits, ducts and other fixtures, appliances or apparatus.

"Corporation."

(*d*) "Corporation" shall mean a municipal corporation and an incorporated company duly authorized by municipal by-law or agreement to construct and operate works for conducting, furnishing or distributing electricity for light, heat or power purposes in, under or upon any highway, and shall include any Board or Commission incorporated or unincorporated, acting on behalf of a municipal corporation or of the inhabitants of a municipality.

Approval of distributing works of the Commission.

3.—(1) Where a corporation has constructed or desires to construct works for conducting, furnishing or distributing electricity for light, heat or power purposes, in, under, or upon any highway, or part of highway, in, under or upon which and other corporation has already constructed and has works for the like purposes, or any of them, upon the application of the first mentioned corporation and after notice to the other and hearing any objections which it may make, the Commission may, if it is of opinion that the location and mode of construction of such works are proper, approve of the same; and all works which such first mentioned corporation has constructed or may thereafter construct, the location and mode of construction of which have been so approved, shall be deemed to have been constructed under statutory authority and to be lawfully constructed and may be maintained and operated by such corporation without its incurring any liability to any other corporation in respect of the construction, maintenance or operation of such works, except that provided for by section 4, any statute or law to the contrary notwithstanding.

Approval upon conditions.

(2) Such approval may be given subject to such conditions as the Commission may deem necessary to prevent injury to the works of the other corporation, or to such other corporation and its servants and workmen, in maintaining, repairing and operating them.

Insulation.

(3) Where the Commission is of opinion that it is necessary or expedient in order to prevent danger from contact between the wires of the two corporations, or from any other cause, that insulators or other appliances should be affixed to the poles of either corporation, or that the wires of either of them should be attached to such insulators or other appliances, the Commission may authorize or direct such insulators or other appliances to be so affixed, and such wires to be so

attached in such manner as the Commission may deem best calculated to prevent such danger; and anything done by either corporation pursuant to such authority or direction shall be deemed to be lawfully done.

Work to be done at expense of initiating corporation.

(4) Anything authorized or directed to be done under the provisions of subsection 3 shall be done at the expense of a corporation constructing the works in a locality in which works have already been constructed by another corporation, and under such supervision as the Commission may direct.

Powers exercisable from time to time.

(5) The powers conferred by this section may be exercised from time to time as occasion may require.

Application to works already constructed.

(6) The provisions of this section shall apply to works of a corporation constructed before the passing of this Act.

Claims for damages by one corporation against another.

4.—(1) If any damage or injury is done to the works of a corporation or any of them, or is occasioned in the maintenance or operation of them by reason of the works of another corporation, or any of them, being constructed or operated in closer proximity to the works of such first mentioned corporation than, but for the provisions of section 3, would have been lawful, no action shall lie in respect thereof, but the corporation doing such damage or injury shall make due compensation therefor, and any question or dispute as to such damage or injury having been so done or occasioned, or as to the amount of the compensation, shall be determined by arbitration, and the provisions of *The Consolidated Municipal Act, 1903*, with respect to the arbitration in the case of claims against municipal corporations shall apply *mutatis mutandis* to the procedure upon an arbitration under this seciton.

3 Edw. VII., c. 19.

Notice of Claim.

(2) The corporation claiming damages shall within one month after the coming into force of this Act, or within one month after the expiration of any calendar year, in which it claims that any such damage or injury has been so done or occasioned, give notice in writing to the other corporation of its claim and of the particulars thereof, and upon failure to do so the right to compensation in respect of the damage or injury done or occasioned prior to the coming into force of this Act, or during that calendar year shall be forever barred.

Approval of Commission may be pleaded.

5. Where the location and mode of construction of any works of a corporation which have been constructed before the passing of this Act are approved by the Commission under the provisions of section 3, the approval of the Commission may be set up in and shall be available as a defence to any action now pending to the same extent and with the same effect as if such action had been commenced after the passing of this Act, and the giving of such approval; and where it is so set up, the plaintiff shall be entitled to discontinue the action, and, if he does so, to be paid his costs of it by the defendant.

6. The Commission shall have exclusive jurisdiction as to all matters in respect of which authority is, by this Act, conferred upon it, and nothing done by the Commission within its jurisdiction shall be open to question or review in any action or proceeding or by any Court. Exclusive jurisdiction of Commission.

7. No Court shall have authority to grant, or shall grant an injunction, or other order, restraining, either temporarily or otherwise, the construction, maintenance or operation of any works, the location and mode of construction of which have been approved by The Commission if the same are being, or have been constructed in the place and according to the mode which have been so approved. Jurisdiction of courts ousted.

An Act to confirm Certain Contracts entered into by the Hydro-Electric Power Commission of Ontario.

(1 Geo. V., chap. 16.)

Assented to 24th March, 1911.

HIS MAJESTY, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:—

1. The municipal corporations of the Towns of Brampton, Dundas, Seaforth, Mitchell and of the Village of Weston, are added as parties of the Second Part to the contract set out as Schedule "A" to *The Power Commission Act, 1909*, as varied and confirmed by the said Act, and as further varied and confirmed by the Act passed in the 10th year of the reign of His Late Majesty King Edward 7th, Chaptered 16, and the said contract shall be binding as to the Town of Brampton from the 14th day of June, 1910, as to the Town of Dundas from the 7th day of November, 1910, as to the Town of Seaforth from the 19th day of December, 1910, as to the Town of Mitchell from the 25th day of December, 1910, and as to the Village of Weston from the 17th day of June, 1910. Amendment of contract by addition of Brampton, Dundas, Seaforth, Mitchell and Weston.

2. The names of the said municipal corporations are added to Schedule "B" to the said contract, and such schedule shall be read as containing the particulars set out in Schedule "A" to this Act. Addition to Schedule to contract.

3. By-law No. 316 of the Corporation of the Town of Brampton, By-law No. 671 of the Corporation of the Town of Dundas, By-law No. 86 of the Corporation of the Town of Seaforth, By-law No. 11 of the Corporation of the Town of Mitchell, and By-law No. 367 of the Corporation of the Village of Weston are confirmed and declared to be legal, valid and binding upon the said corporations and the ratepayers thereof respectively, and shall not be open to question upon any ground whatsoever notwithstanding the requirements of *The Power Commission Act*, or the amendments thereto or of any other statute. By-laws confirmed.

Contracts confirmed.

4. The contracts heretofore entered into by the said corporations respectively with the Commission are confirmed and declared to be legal, valid and binding upon the parties thereto respectively and shall not be open to question upon any ground whatsoever notwithstanding the requirements of *The Power Commission Act*, or the amendments thereto or of any other statute.

SCHEDULE A.

Additions to Schedule B to the contract set out in Schedule A to 9 Edw. 7, c. 19.

Name of Municipal Corporation.	Quantity of power applied for in h.p.	Maximum price of power at Niagara Falls.	No. of volts.	Estimate maximum cost of power ready for distribution in municipality.	Estimate proportionate part of cost to construct transmission line, transformer stations and works for nominally 30,000 h.p. with total capacity of 60,000 h.p.	Estimate of proportionate part of line loss and of part cost to operate, maintain, repair, renew and insure transmission line, transformer stations and works for nominally 30,000 h.p. with total capacity of 60,000 h.p.
Brampton	1,300			$29.40	$179,132	$15,690
Dundas	600			17.33	32,160	2,892
Seaforth	400			41.25	102,941	6,769
Mitchell	200			38.50	47,490	3,066
Weston	250			29.25	42,437	2,501

AGREEMENTS.

Additional agreements were made between the Hydro-Electric Power Commission and: The Ottawa and Hull Power and Manufacturing Company on the 6th day of December, 1910; The Municipal Corporation of the City of Ottawa on the 6th of December, 1910: The Simcoe Railway and Power Company on the 10th of February, 1911: The Town of Penetanguishene on the 2nd of May, 1911; The Town of Midland on the 20th of July, 1911: The Dominion Sewer Pipe Company on September 19th, 1911; and The Standard White Lime Company on the 15th of October, 1911.

MEMORANDUM OF AGREEMENT made this Sixth day of December, A.D., 1910.

BETWEEN:

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called "The Commission,"

of the First Part.

and

THE OTTAWA AND HULL POWER AND MANUFACTURING COMPANY, LIMITED, hereinafter called "The Company,"

of the Second Part.

WHEREAS the parties hereto under an agreement dated the 31st day of July, 1907, entered into a contract for the firm, purchase and sale of fifteen hundred horse power, and for the provisional purchase and sale of an additional one thousand horse power:

AND WHEREAS the Commission has purchased and used the said additional power as well as the firm power contracted for, comprising in all the full amount of twenty-five hundred horse power contemplated in the agreement:

AND WHEREAS the Commission desires to purchase an additional amount of fifteen hundred horse power, and to transmit all the power acquired by means of a three phase transmission line operating at 11,000 volts as contemplated in the agreement:

AND WHEREAS the party of the Second Part has agreed to increase the said additional power by fifteen hundred horse power, and to sell the said fifteen hundred horse power under the same provisional conditions as agreed upon for the original one thousand horse power now firmly purchased:

AND WHEREAS the Company in consideration of the increased amount of power intended to be purchased as above set forth has agreed

to waive payment on the part of the Commission of the transformer rentals contemplated in the said agreement and therein expressed as a percentage of the capital cost of the transformer equipment.

NOW THEREFORE, the parties agree for the purpose of carrying out the intent of the aforesaid to amend the said agreement as follows:

1. Wherever in Clause 1 the words "one thousand horse power" appear these shall be changed to read "Twenty-five Hundred Horse Power."

2. Wherever in Clause 13 the words "twenty-five hundred horse power" appear these shall be changed to read "Four Thousand Horse Power."

3. From Clause 3 shall be deleted the following words: "And provided that if power is required to be delivered at approximately eleven thousand (11,000) volts, the Commission will pay the Company an additional amount per annum equal to fifteen per cent. (15%) on the market value of two transformers having sufficient capacity to raise the total amount of power contracted for herein from approximately two thousand three hundred (2,300) volts to approximately eleven thousand (11,000) volts, the value of the transformers to be based on the market price of transformers, equal in every respect, to those now installed in the power house of the Ottawa and Hull Power and Manufacturing Company—the market price to be that existing at the time change in voltage is ordered."

In all other respects the original agreement shall stand.

IN WITNESS WHEREOF the parties hereto shall set their hands and seals on the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of

[SEAL.]

HYDRO-ELECTRIC POWER COMMISSION.
(Sgd) A. BECK, *Chairman.*
(Sgd) W. K. MCNAUGHT.

[SEAL.]

THE OTTAWA AND HULL POWER AND MFG. CO., LTD.
(Sgd.) M. WM. C. RAWAND, *President.*
(Sgd.) R. BLACKBURN, *Secy.-Treas.*

MEMORANDUM OF AGREEMENT made this Sixth day of December, A.D., 1910.

BETWEEN:

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission,"

of the First Part,

and

THE MUNICIPAL CORPORATION OF THE CITY OF OTTAWA, hereinafter called the "Municipal Corporation,"

of the Second Part.

WHEREAS the parties hereto under a contract dated 31st day of July, 1907, entered into an arrangement for the firm, purchase and sale of fifteen hundred horse power and for the provisional purchase and sale of an additional one thousand horse power, all subject to an agreement dated the 30th day of August, 1907, between the Commission and the Ottawa and Hull Power and Manufacturing Company, Limited, which said agreement was made a part of the contract.

AND WHEREAS the Municipal Corporation has purchased and the Commission has sold the full amount of twenty-five hundred horse power contemplated in the said contract and the said agreement.

AND WHEREAS the Municipal Corporation desires to purchase an additional amount of fifteen hundred horse power, and to transmit all the power acquired by means of a three phase transmission line operating at 11,000 volts as contemplated in both said agreement and contract.

AND WHEREAS the Commission under an amendment to the said agreement which is dated the Sixth day of December, A.D., 1910, and of which a copy is hereto annexed and made a part thereof, has provisionally purchased the required power and obtained the waiver of the Company to the transformer rentals contemplated in the said agreement.

AND WHEREAS the Municipal Corporation has agreed to accept the terms of the said agreement as amended, as if made by and between the Municipal Corporation and the Company.

NOW, THEREFORE, the parties agree for the purpose of carrying out the intent of the aforesaid to amend the said contract as follows:

Wherever the words "twenty-five hundred horse power" are found, these shall be changed to read "FOUR HUNDRED HORSE POWER."

IN WITNESS WHEREOF the parties hereto have set their hands and seals on the day and year first above written.

SIGNED, SEALED AND DELIVERED in the presence of

[SEAL.]

HYDRO-ELECTRIC POWER COMMISSION.
(Sgd.) A. BECK, *Chairman.*
(Sgd.) W. K. MCNAUGHT.

[SEAL.]

CORPORATION OF CITY OF OTTAWA.
(Sgd.) CHAS. HOPEWELL. *Mayor.*
(Sgd.) JOHN HENDERSON, *City Clerk.*

THIS AGREEMENT DATED THE 10th day of February, A.D., 1911.

BETWEEN:

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO acting herein on its own behalf and with the approval of the Lieutenant-Governor-in-Council, herein called the "Commission."

party of the First Part.

and

THE SIMCOE RAILWAY AND POWER COMPANY, herein called the "Company"

party of the Second Part.

WHEREAS the Company was duly incorporated Chapter 145 of the Statutes of Ontario 9 (Edward VII) and Chapter 151 of the Statutes of Ontario 10 (Edward VII) and also entered into an agreement by way of a Lease with the Crown, bearing date the 7th day of September A.D. 1909, and numbered 1815. In pursuance of the said Acts and Lease, have erected a Power Plant on the Severn River, at a location known as the Big Chute, for the development, transmission and sale of Electrical Power, Light and Heat.

AND WHEREAS certain Municipalities have applied to the Commission for a maximum price of such power, and for estimates on the cost of transmission to such Municipalities.

AND WHEREAS the said estimates will be based in part upon this agreement and the Commission will be required to devote time and skill and expend moneys in preparation of such estimates, and such estimates are to be used for the purpose set forth in the Power Commission Act.

NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and of the mutual covenants and agreement herein, each of the said parties hereto agrees with the other as follows:

1. The Company hereby agrees;

(*a*) At the expiration of thirty (30) days' notice in writing from the Commission to the Company, to reserve and deliver when called for, 200 horse power or more of electrical power to the Commsision. Said notice shall be given not later than July 1st, 1911. Initial quantity.

(*b*) At the expiration of thirty(30) days' notice in writing, which may be given from time to time during the continuance of this agreement, to reserve and deliver to the Commission, additional electric power when called for from time to time, in blocks of fifty horse power each, until 500 horse power is ordered to be reserved, and then in blocks of one hundred horse power each until the total amount so reserved and delivered shall amount to 1,600 horse power. Increments.

The Commission in giving notice as above, will specify approximately in what proportions any additional block of power is to be distributed among different points of delivery.

(*c*) The Commission shall not be bound to take or pay for any electric power until notice shall have been given as above provided.

2. The Company hereby agrees to reserve and deliver and the Commission agrees to purchase and pay for the said electric power on the terms and conditions of this agreement. Agreement.

3. The Commission agrees: Procuring market.

(*a*) To use all diligence by every lawful means in its power to procure such a demand from the Municipalities, Corporations, Companies, or Persons for the power dealt with by this agreement, so that at as early a date as possible the Commission will be in a position to give the first notice above referred to, to the Company for the supply of power in question, and if notwithstanding the exercise of all such reasonable diligence the Commission is not able on or before the First day of July, 1911, to give such notice, then the Company shall be at liberty to determine the agreement and it shall thereupon be no longer binding upon the parties hereto.

(*b*) To pay the Company for such power reserved or taken under this agreement, subject to conditions of paragraph 5, and all other conditions of this agreement, as set forth hereunder, it being understood and agreed that demand for power as defined shall at the option of the Commission, refer either to 22,000 volt high tension power, or 2,200 volt low tension power, as required by the Commission from time to time, delivered respectively as set forth in paragraph 6 hereunder. Price.

For the initial 200 horse power, to pay $21.00 per horse power per annum for any proportion thereof taken at 2,200 volt low tension, and $20.00 per horse power per annum for any proportion thereof taken at 22,000 volt high tension.

When the demand shall have increased to 500 horse power, to pay

$20.00 per horse power per annum for all of any proportion thereof taken at 2,200 volts low tension and $19.00 per horse power per annum for all of any proportion thereof taken at 22,000 volt high tension.

When the demand shall have increased to 1,000 horse power, to pay $19.00 per horse power per annum for all of any proportion thereof taken at 2,200 volt low tension, and $18.00 per horse power per annum for all of any portion thereof taken at 22,000 volt high tension.

When the demand shall have increased to 1,500 horse power, to pay $17.50 per horse power per annum for all of any proportion thereof taken at 2,200 volts low tension, and $16.50 per horse power per annum for all of any proportion thereof taken at 22,000 volts high tension.

Additional demand.

4. If, after the Commission has ordered 1,600 horse power as hereinbefore provided, additional power is required by the Commission same shall be provided by the Company according to the terms and conditions of this agreement or with such modifications thereof as may be agreed upon, providing the Company has the power available or capable of development.

Basis of payment.

5. The Commission shall pay for three-fourths of the power ordered from time to time by the Commission and held in reserve for it as herein provided, whether it takes the same or not. When the greatest amount of power taken for any twenty consecutive minutes during any month shall exceed, during such twenty consecutive minutes, three-fourths of the amount ordered by the Commission and held in reserve, then the Commission shall pay for this greatest amount during the entire month.

If the Commission during any month takes more than the amount of power ordered and held in reserve for it for twenty (20) consecutive minutes, the Commission shall pay for this greatest amount of power during the entire month. The taking of such excess shall thereafter constitute an obligation on the part of the Commission to pay for, and on the part of the Company to hold in reserve, an additional block of power, in accordance with the terms and conditions of this contract.

A composite daily curve, derived from daily load curves taken at the various points of measurement in accordance with the method specified in paragraph 12, shall be compiled each month by the Commission, and these composite curves shall be used as a basis of payment for power used during the month to which they apply.

The power shall be paid for monthly in gold coin of the present standard of weight and fineness, in twelve amounts in each year at the office of the Company at Midland, Ontario. The composite curve shall be forwarded to the Company by the fifth day of the succeeding month, and bills shall be rendered by the Company on the tenth day and paid by the Commission on or before the twentieth day of each month.

Points of delivery.

6. Under this agreement the points of delivery by the Company to the Commission for low tension and high tension power respectively, shall be as follows, namely:

(*a*) For 2,200 volt low tension power, at the low tension outlet bushings of the Company's step-down substation as now located at the outskirts of the Town of Midland, Ontario, the power so taken shall be measured at the 2,200 volt switch-board in said substation, in accordance with conditions of paragraph 12 hereof.

(*b*) For 22,000 volt high tension power, at any point or points on the Company's 22,000 volt line or lines to be selected by the Commission as being most suitable for connection to the line or lines built or to be built by the Commission. Said connection or connections to be made by means of open-air switches or other connections of suitable design, to be installed by the Commission, and all expense incident thereto is to be borne by the Commission. It being, however, understood and agreed that during the period of time required by the Commission to make such connection or connections the Company, upon ten days' notice in writing from the Commission, shall shut off the power from its high tension line or lines, and the Commission shall not be held liable for any claim or claims on the part of the Company or its customers, which might arise as a result of interrupted service during such above period. The Commission will arrange to make the final connections on Sunday whenever possible.

The power so taken shall be measured at the nearest stepdown transformer station of the Commission, in accordance with the conditions of paragraph 12 hereof.

Duration of contract.

7. This agreement shall remain in force for ten years from the date of the expiration of the said first notice or thirty days. The Commission may at its option continue this agreement for one or two further consecutive terms, the first of these two additional terms being of five years' duration, and the second of such length that the expiry thereof shall fall on the tenth day of September, 1929, being the date upon which the lease of the Company with the Crown will expire. The Commission may exercise the first of these options by first giving notice in writing of its intention to continue this agreement for the second term of five years, at least one year before the expiration of the first term of ten years, and if pursuant to such notice, this agreement is continued beyond the second term of five years, by giving notice in writing of its intention to continue this agreement until the said tenth day of September, 1929, at least one year before the expiration of the said second term of five years.

Characteristics.

8. The electric power herein contracted for shall be three-phase, alternating, commercially continuous, twenty-four hour power every day of the year except as provided in paragraph 14 hereof.

Conditions of delivery.

9. It is agreed that maintenance by the Company of the agreed voltage at the agreed frequency at the points of delivery, having regard to the distance of such points from the point of generation, shall constitute the delivery of all power involved herein and the fulfillment of all operating obligations hereunder, and that when voltage and fre-

quency are so maintained, the amount of power, its fluctuations, load factor, power factor, distribution as to phases, and all other electric characteristics and qualities are under the sole control of the Commission, its agents, customers, apparatus, appliance and circuits.

Power factor.

10. The Commission shall so take power that the kilovolt-amperes so taken shall not at any time exceed by more than ten per cent. the kilowatts held in reserve for it and this provision shall apply proportionately to each circuit and phase.

When the kilovolt amperes of the measured power shall exceed by more than ten (10) per cent. the kilowatts held in reserve, and when, upon thirty (30) days' notice from the Company, the Commission fails to remedy such condition, the excess kilovolt-amperes shall be paid for as true power, but only while such condition exists. The Commission shall be notified by the Company whenever the above condition obtains.

Type of plant and regulation.

11. The Company shall at all times use first-class modern, standard, commercial Hydro-Electric power apparatus and plant, and the power shall be delivered at approximately 60 cycles per second, and at approximately 22,000 volts for high tension power, and at approximately 2,200 volts for low tension power, allowance being made for the distance of the points of delivery from the point of generation. The Company shall use first class, modern, standard, regulating apparatus and all due skill and diligence to maintain the power at such voltage and frequency. The maximum allowable variation at the power house under normal operating conditions shall be 2½ per cent. above or below frequency and voltage herein specified. The Company shall use all due diligence to prevent greater variation than above provided for, caused by temporary abnormal conditions, and the Company shall not be in any way liable if such due diligence is used.

The Commission shall provide step-down transformers with taps to receive high tension power at 22,000, 21,000, 20,000 and 19,000 volts at high tension terminals in the tranformer station of the Commission.

The Commission and its customers shall select and use transformers and all apparatus most suitable to receive the electric power produced by the apparatus of the Company, and the Commission's transmitting, transforming, translating and all other apparatus and devices upon its circuits when receiving power from the Company shall be of modern standard design and construction, and shall be operated and maintained with special reference to securing the highest efficiency and most perfect operation consistent with commercial practice, not only of its own, but also of the apparatus of the Company when receiving power from the Company; and the Commission shall install upon and equip all circuits with such modern and approved protective devices as are necessary to afford the same measure of protection provided by the Company for its own circuits.

Measurement of power.

12. The power herein provided for shall be measured by curve drawing meters. The meters shall be subject to test as to accuracy by either party hereto and shall be furnished by and installed by the Com-

pany when required, in the transformer stations of the Commission, and in the transformer stations of the Company, and the Commission shall have the right to install instruments in said stations for checking the records made by the aforesaid instruments, and the Commission and the Company will provide suitable space in their respective stations, for the proper installation of duplicate sets of curve drawing meters, and such other measuring apparatus as the Commission may deem necessary.

When power is delivered to, and measured in, the Commission's transformer stations at a distance of more than five miles from the Company's high tension line, allowance shall be made for C^2R loss between point of delivery and point of measurement.

Inspection and alterations.

13. The Engineers of the Commission or one or more of them or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of the agreement to inspect the apparatus, plant and property of the Company and take records at all reasonable hours. If in the opinion of the Commission any such apparatus, devices, wiring, plant or property is defective or is liable to cause interruption or trouble to or in connection with the supply of the said power, then the Company shall forthwith on request by the Commission's Engineer make such changes at the expense of the Company as may be required by the said Engineer. In the event of non-compliance by the Company with any requirement of the Commission, under this paragraph, the Commission may, at its discretion, after notice has been given in writing, proceed to make such changes in accordance with the recommendation of said Engineer, and a sufficient sum to cover all costs in connection therewith shall be deducted from any moneys payable by the Commission to the Company under this agreement. Nothing contained in this paragraph shall limit or impair the rights of the Company to seek redress under paragraph 20 hereof.

Shut-downs.

14. In case the Company shall at any time be prevented from delivering said power, or any part thereof, or in case the Commission shall at any time be prevented from taking said power, or any part thereof, by strike, lockout riot, fire, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond their control, then the Company shall not be bound to deliver such power during such time and the Commission shall not be bound to pay for such power during such time, but as soon as the cause of such interruption is removed, the Company shall, without any delay, deliver the said power as aforesaid, and the Commission shall take the same and each of the parties hereto shall be prompt and diligent in removing and overcoming such causes of interruption.

Destruction of plant.

15. In case the plant, apparatus, building or premises of the Company or any part thereof, shall at any time during the continuance of this agreement be damaged or destroyed so as to prevent the Company from supplying the said power of the quantity hereinbefore provided for to the Commission, the Company shall use its best endeavor to procure the said supply of power for the Commission otherwise or elsewhere, and if

the Company fails or neglects to procure such power for the Commission then the Commission may, with the approval of the Lieutenant-Governor-in-Council, procure such power at reasonable rates and charge the same to the Company; and if the said power cannot be procured either by the Company or the Commission then the Commission may, with the approval of the Lieutenant-Governor-in-Council, terminate this agreement.

Precedence of demand.

16. After the happenings of any of the events provided for in paragraphs 14 and 15 hereof, power shall be delivered first for delivery to public utilities, whether the same are being supplied by the Commission or directly by the Company. Said delivery to be pro rata, first for waterworks service, second for lighting, and third for railway services, after which power shall be delivered pro rata to the Commission and other customers of the Company.

Liquidated damages.

17. If and so often as any interruption shall occur in the service of the Company due to any cause or causes other than those provided for by paragraphs 14 and 15 hereof, the Company shall pay to the Commission as liquidated and ascertained damages, and not by way of penalty as follows:

For any interruption less than one hour double the amount payable for power which should have been delivered during the time of such interruption, and for any interruption of one hour or more, the amount payable for the power which should have been delivered during the time of such interruption, and six times the last mentioned amount in addition thereto, and all moneys payable under this paragraph, when the amount thereof is settled between the parties may be deducted from any moneys payable by the Commission to the Company under this agreement.

Improvement of service.

18. It is recognized by both the parties hereto that the state of the art of production, transmission and application of electrical energy is subject to constant advance, and that it is impossible by contract to cover all the requirements and conditions which time may develop; the Company and the Commission with the approval of the Lieutenant-Governor-in-Council while adhering to the provisions of this agreement will at any time upon request of the other, take up and in good faith fairly consider, with the aid of the respective engineers, any features of changes of the system as a whole or any modifications of any of the provisions hereof provided, it shall appear to the party to whom such request is made that compliance therewith shall tend to make this agreement more effective and to make the venture of each party more successful and certain, provided however, that any such action or the failure on the part of either party to require of the exact conformity to the provisions of this agreement or any liberty or greater latitude beyond the provisions of this agreement allowed by either party to the other in course of the co-operation implied by the spirit of this agreement, shall in no manner operate as or constitute a precedent or amend or change the obligations of the parties thereto.

Expropriation.

19. This agreement is entered into subject to the provisions of the Power Commission Act and neither the making of this agreement, nor

anything herein contained shall in any way limit or prejudice any rights and powers which the Commission may have to expropriate the plant and apparatus of the said Company, or any part thereof, or the power generated by the said Power Company or any other Power Company, but nothing in this agreement shall be taken to give or enlarge any such rights or power.

Arbitration.

20. It is agreed that in case any dispute shall arise relating to the question of the performance and fulfillment of any of the terms, provisoes or conditions of this agreement, or as to the method of accuracy of the measurement of the power, or as to any question which may arise under this agreement, or as to the rights of any of the parties after the termination of this agreement, under paragraph 21, the same shall be determined by two independent persons, one to be chosen by each of the parties of such dispute, and such persons before proceeding with the reference, shall appoint a third arbitrator to act with them, and the decision of the said three arbitrators or a majority of them, shall be conclusive on both parties, except as hereinafter provided and in case either of the said parties shall neglect or fail to appoint an arbitrator within thirty days after the request in writing by the other party then the arbitrator appointed by the other party may proceed alone and his award shall be conclusive on both parties except as hereinafter provided. The award shall be made within four months after the appointment of the first of such arbitrators, and in the event of the arbitrators appointed as aforesaid being unable or unwilling to agree upon a third arbitrator within two weeks after their appointment or the appointment of the one of them who was last appointed, then such third arbitrator shall be chosen and appointed by the Chief Justice for the time being of the King's Bench Division of the High Court of Justice for the Province of Ontario, or in the event of the said Chief Justice being ill, absent from the Province or otherwise unable or refusing to act, then such third arbitrator shall be appointed by any Judge of the High Court of Justice or any Judge other than a local Judge. It is agreed that there may be an appeal by either party from any decision or award of such arbitrators to the High Court of Justice of Ontario in accordance with the provisions of the Arbitration Act in that behalf.

Inefficient service.

21. If at any time that the quantity of power which is being taken under this agreement by the Commission shall amount to sixty per cent. or more of the total power which the Company is developing, and a complaint is then made in writing by the Commission to the Company that the Company has so continuously neglected or failed to perform the terms of this agreement that the apparatus of the Commission or its customers cannot, by reason of such neglect or failure of the Company, be operated to full efficiency, and the Company shall not within a reasonable time remedy such neglect or failure, then the matter of complaint may be referred to the Lieutenant-Governor-in-Council, and if he determine that there is a just ground for complaint, he may direct that the Council shall, within a time to be fixed by him, remedy such neglect or failure and if such neglect or failure be not remedied as directed by him, the

Lieutenant-Governor-in-Council may order that upon such terms as he may deem reasonable, including the rights of other parties interested, the whole of the plant, apparatus and property of the Company, shall be transferred to the Commission whereupon on payment and satisfaction of the said terms, the amount of which payment and satisfaction is to be settled by the arbitrators appointed as hereinbefore stated, the Commission may, with the approval of the Lieutenant-Governor-in-Council, take over the plant, apparatus and property of the Company, and the same shall be transferred to the Commission.

Damage suits.

22. In case any municipal corporation which shall contract with the Commission for a supply of power or any person, firm or corporation, which shall contract with any such municipal corporation, or with the Commission for a supply of power furnished to the Commission by the Company, shall suffer damages by the act or neglect of the Company, and such municipal corporation, person, firm or corporation would, if the Company had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such municipal corporation, person, firm or corporation, and notwithstanding any acts, decision or rule of law to the contrary the Commission shall be entitled to all the rights and remedies of such municipal corporations, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

Continuous delivery.

23. Subject to the provisions of paragraph 15 and 21 of this agreement, notwithstanding there may be differences between the parties hereto as to the supply or sufficiency of the said power, or the payment therefor, or any other questions whatsoever which may arise under this agreement the Company shall continue to deliver the power and the Commission to pay therefor, and both parties shall continue to carry out the contract notwithstanding such differences: and when the matters which may be so in issue shall be finally determined by the reference to arbitration in the manner provided by paragraph 20 hereof, the parties shall deal with such matters according to the terms of the award which may be made upon such reference. It being the distinct agreement between the parties that there shall not be during the period of this agreement any stoppage or cessation in the supply of the said power for the payments therefor, but that the same shall be continued as if there was no such difference.

Restrictions.

24. During the period of this agreement, or extension thereof, the Company shall not directly or indirectly supply power to any municipality, or to any person, firm or corporation therein, while such person,

firm or corporation therein is supplied by the Commission, nor shall the Commission purchase or supply power from any other source than the Company within a distance of five (5) miles of the Company's transmission line as at this date existing, except in the event of the Company not having power available to meet the requirements of the notice of the Commission.

Final Order-in-Council.

25. Notwithstanding anything hereinbefore contained this agreement shall not come into operation as against the Commission or be binding upon the Commission until in addition to any other Order-in-Council, pursuant to said Act, an Order-in-Council has been passed and approved by the Lieutenant-Governor-in-Council, expressly declaring that this agreement shall from the date of such Order-in-Council be binding upon the Commission, but this shall in no way interfere with the agreement contained in paragraph 3 (*a*) and the Commission undertakes to do all things lawful in its power that may be needed to bring this agreement into operation at as early a date as possible, and to procure the assent and declaration of the said Lieutenant-Governor-in-Council above referred to, and the said Company agrees to co-operate with the Commission by all means in its power to carry out the object of this agreement.

26. Notwithstanding anything herein contained to the contrary, it is hereby distinctly understood and agreed that the rights, privileges or powers of either party under the Acts, Chap. 145, o. s. 9 (Edward VII.) and Chapter 151, o. s. 10 (Edward VII.) and amendments thereof, or Lease number 1,815, as issued to the Company by the department of Crown Lands bearing date of the 7th day of September, 1909, shall be in no way impaired, prejudiced or varied and same in all respects shall remain in full force and effect as if this agreement had not been made.

Successors and assigns.

27. This agreement shall extend to, and be binding upon and enure to the benefit of the successors and asigns of the parties hereto.

IN WITNESS WHEREOF the Commission and the Company have respectively affixed their corporate seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED in the presence of

[SEAL.]

HYDRO-ELECTRIC POWER COMMISSION.

(Sgd.) A. BECK, *Chairman.*

(Sgd.) W. W. POPE, *Secretary.*

[SEAL.]

THE SIMCOE RAILWAY & POWER COMPANY.

(Sgd.) W. J. LOVERING, *President.*

(Sgd.) W. FINLAYSON, *Vice-President and Secretary.*

THIS INDENTURE made in duplicate this twentieth day of July in the year of our Lord one Thousand Nine Hundred and Eleven.

BETWEEN

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission."

party of the First Part.

and

THE MUNICIPAL CORPORATION OF THE TOWN OF MIDLAND, hereinafter called the "Corporation."

party of the Second Part.

WHEREAS, pursuant to "An Act to provide for transmission of electrical power to Municipalities" the Corporation applied to the Commission for a supply of power, and the Commission have entered into a contract with the Simcoe Railway and Power Co., and the electors of the Corporation assented to a by-law authorizing the Corporation to enter into a contract with the Commission for such power.

1. NOW THEREFORE THIS INDENTURE WITNESSETH that in consideration of the premises and of the agreements of the corporation herein set forth, subject to the provisions of said Act and of the said contract, the Commission agrees with the Corporation:

(*a*) At the expiration of thirty days' notice in writing from the Corporation to the Commission, to reserve and deliver when called for 200 h.p. or more of electric power to the Corporation. Said notice shall be given not later than June 15th, 1911.

(*b*) At the expiration of thirty days' notice in writing which may be given by the Corporation from time to time, during the continuance of this agreement, to reserve and deliver to the Corporation additional electric power when called for in blocks of 50 h.p. each until 500 h.p. is being delivered or is reserved by the Power Company, and then in blocks of 100 h.p. each until the total amount so reserved or delivered shall amount to 1,600 h.p.

(*c*) To use at all times first-class, modern, standard commercial apparatus and plant, and to exercise all due skill and diligence so as to secure the satisfactory operation of the plant and apparatus of the Corporation.

(*d*) The power shall be delivered to the Corporation at approximately 2,200 volts and at approximately 60 cycles per second.

2. In consideration of the premises and of the agreements herein set forth, the Corporation agrees with the Commission:

(*a*) To use all diligence by every lawful means in its power to prepare for the receipt and use of the power dealt with by this agreement so as to be able to give notice as specified in paragraph 1 (*a*).

(*b*) Subject to the provisions of paragraph 2 (*e*) hereof, to pay the Commission the following prices: $21.00 per h.p. per annum for all power reserved or taken until the demands of the Commission on the Power Company shall equal or exceed 500 h.p.

When the demand of the Commission on the Power Company shall have increased to 500 h.p. to pay $20.00 per h.p. per annum for all or any proportion thereof reserved or taken by the Corporation.

When the demand of the Commission on the Power Company shall have increased to 1,000 h.p. to pay $19.00 per h.p. per annum for all or any proportion thereof reserved or taken by the Corporation.

When the demand of the Commission on the Power Company shall have increased to 1,500 h.p. to pay $17.50 per h.p. per annum for all or any proportion thereof reserved or taken by the Corporation.

Nothing herein contained shall bind the Commission to supply power on the demand of the Corporation after the demand of the Commission on the Power Company exceeds 1,600 h.p., unless the Power Company has power available or capable of development.

(*c*) The power shall be paid for in twelve monthly payments, in gold coin of the present standard of weight and fineness, at the office of the Commission at Toronto, and bills shall be rendered by the Commission on or before the 5th day and paid by the Corporation on or before the 15th day of each month. If any bill remains unpaid for fifteen days, the Commission may, in addition to all other remedies and without notice, discontinue the supply of power to the Corporation until said bill is paid. No such discontinuance shall relieve the Corporation from the performance of the covenants, provisoes and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*d*) To take electric power exclusively from the Commission during the continuance of this agreement.

(*e*) To pay for three-fourths of the power ordered from time to time by the Corporation and held in reserve for it as herein provided whether it takes the same or not. When the greatest amount of power taken for any twenty consecutive minutes during any month shall exceed during the twenty consecutive minutes three-fourths of the amount ordered by the Corporation and held in reserve, then the Corporation shall pay for this greater amount during the entire month.

If the Corporation during any month takes more than the amount of power ordered and held in reserve for it for twenty consecutive minutes, the Corporation shall pay for this greater amount of power during the entire month. The taking of such excess shall thereafter constitute an obligation on the part of the Corporation to pay for and on the part of the Commission to hold in reserve an additional block of power in accordance with the terms and conditions of this contract.

When the power factor of the greatest amount of power taken for said twenty consecutive minutes falls below 90 per cent., the Corporation shall pay for 90 per cent. of said power divided by the Power factor.

(*f*) To use at all times, first-class, modern, standard commercial apparatus and plant to be approved by the Commission.

(*g*) To exercise all due skill and diligence so as to secure the most perfect operation of the plant and apparatus of the Commission and the Corporation.

3. This agreement shall remain in force for ten years from the date of the expiration of the said first notice of 30 days The Corporation may, at its option, continue this agreement for one or two further consecutive terms, the first of these two additional terms being of five years' duration, and the second of such length that the expiry thereof shall fall on the 10th day of September, 1929.

(*a*) Provided, however, that in the event of the Commission being in a position to furnish power either by a further agreement with the Simcoe Railway and Power Company or otherwise, the Corporation may, at its option, continue this agreement for a further term of twelve years' duration.

(*b*) The Corporation may exercise the first of these options by giving notice in writing of its intention to continue this agreement for the second term of five years at least two years before the expiration of the first term of ten years.

(*c*) The Corporation may exercise the second of these options by giving notice in writing of its intention to continue this agreement for the third term until the expiry date on September 10th, 1929, at least two years before the expiration of the second term of five years.

(*d*) The Corporation may, subject to the conditions set out in paragraph 3 (*a*) exercise the further option therein mentioned by giving the Commission notice in writing of its intention to continue this agreement for the further term of twelve years at least two years before the expiration of the term falling on the 10th day of September, 1929.

4. The power shall be approximately 2,200 volts, 60 cycle, 3 phase, alternating commercially continuous twenty-four hour power every day in the year except as provided herewith, and shall be delivered by the Commission to the Corporation at the low tension outlet bushings of the Sub-Station of the Simcoe Railway and Power Company, at the outskirts of the Town of Midland.

(*a*) The Power so taken shall be measured at the 2,200 volt switchboard in said sub-station by Graphic Recording Curve Drawing Meters, subject to test as to accuracy by either party hereto.

(*b*) The maintenance by the Commission of approximately the agreed voltage at approximately the agreed frequency at the Sub-station in the limits of the Corporation shall constitute the supply of all power involved herein and the fulfilment of all operating obligations hereunder: and when the voltage and frequency are so maintained, the amount of the power, its fluctuations, load factor, power factor, distribu-

tion as to phases, and all other electric characteristics and qualities are under the sole control of the Corporation, their agents, customers, apparatus, appliances and circuits.

5. The Engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Corporation and take records at all reasonable hours.

6. In case the Commission should at any time or times be prevented from supplying said power, or any part thereof, or in case the Corporation shall at any time be prevented from taking said power, or any part thereof, by strike, lockout, fire, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond their control then the Commission shall not be bound to deliver such power during such times, and the Corporation shall not be bound to pay the price of said power during such time, but as soon as the cause of such interruption is removed, the Commission shall without any delay supply said power as aforesaid, and the Corporation shall take the same and shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

7. If, and so often as any interruption shall occur in the service of the Power Company due to any cause or causes, other than those provided for by the next preceding paragraph hereof, the Commission shall recover and pay to the Corporation as liquidated and ascertained damages, and not by way of penalty, as follows: For any interruption of less than one hour double the amount payable for power which should have been supplied during the time of such interruption, and six times the last mentioned amount in addition thereto, and all moneys payable under this paragraph, when the amount thereof is settled between the Commission and the Company, may be deducted from any money payable by the Corporation to the Commission, but such right of deduction shall not in any case delay the said monthly payments.

8. If at any time any other Municipal Corporation or pursuant to said Act, any railway or distributing company, or any other Corporation or person, applies to the Commission for a supply of power, the Commission shall notify the applicant and the Corporation in writing, of a time and place and hear all representations that may be made as to terms and conditions for such supply.

Without discrimination in favor of the applicants as to the price to be paid, for equal quantity of power, the Commission may supply power upon such terms and conditions as may, having regard to the risk and expense incurred, and paid, and to be paid by the Corporation, appear equitable to the Commission, and are approved by the Lieutenant Governor-in-Council.

No such application shall be granted if the said line is not adequate for such supply or if the supply of the Corporation will be thereby injuriously affected, and no power shall be supplied within the limits of a Municipal Corporation taking power from the Commission at the time of such application without the written consent of such Corporation.

In determining the quantity of power supplied to a Municipal Corporation, the quantity supplied by the Commission within the limits of the Corporation to any applicant, other than a Municipal Corporation, shall be computed as part of the quantity supplied to such corporation, but such Corporation shall not be liable to pay for the power so supplied, or otherwise in respect thereof. In order to prevent discrimination by the Municipal Corporation, no power shall be supplied by the Municipal Corporation to any railway or distributing company without the written consent of the Commission, but the Corporation may sell power to any person or persons or manufacturing companies inside the limits of the Town of Midland, but such power shall not be sold for less than the cost and without discrimination as regards price and quantity.

9. In case any Municipal Corporation, or any person, firm or Corporation which shall contract with the Commission or with any Municipal Corporation for a supply of power furnished to the Commission by the Power Company shall suffer damages by the act or neglect of the Power Company, and such Municipal Corporation, person, firm or Corporation would, if the Power Company had made the said contracts directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such Municipal Corporation, person, firm, or Corporation, and notwithstanding any act, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such Municipal Corporation, person, firm or Corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceedings or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm, or corporation shall not be hereby prejudiced.

10. If differences arise between Corporations to whom the Commission is supplying power, the Commission may upon application fix a time and place to hear all representations that may be made by the parties and the Commission shall, in a summary manner, when possible, adjust such differences, and such adjustment shall be final. The Commission shall have all the powers that may be conferred upon a Commissioner appointed under the Act respecting Enquiries concerning Public Matters.

11. If differences arise between the Corporation and the Commission, the Lieutenant Governor-in-Council may, upon application, fix a time and place to hear all representations that may be made by the parties, and the Lieutenant Governor-in-Council shall, in a summary manner, when possible, adjust such differences and such adjustment shall be final. The Lieutenant Governor-in-Council shall have all the powers that may be conferred upon a Commissioner appointed under the Act respecting enquiries concerning public matter.

12. This agreement shall extend to and be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

IN WITNESS WHEREOF the Commission and the Corporation have respectively affixed their corporate seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED in the presence of

HYDRO-ELECTRIC POWER COMMISSION.
(Sgd.) A. BECK, *Chairman.*
(Sgd.) W. K. MCNAUGHT,

[SEAL.]

CORPORATION OF TOWN OF MIDLAND.
(Sgd.) DIGBY HARELL, *Mayor.*
(Sgd.) FRANK R. WESTON, *Clerk.*

[SEAL.]

THIS INDENTURE made in duplicate this second day of May, in the year of our Lord One Thousand Nine Hundred and Eleven.

BETWEEN:

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO hereinafter called the "Commission,"
party of the First Part.

and

THE MUNICIPAL CORPORATION OF THE TOWN OF PENETANGUISHENE hereinafter called the "Corporation,"
party of the Second Part.

Whereas, pursuant to "An Act to provide for transmission electrical power to municipalities," the Corporation applied to the Commission for a supply of power, and the Commission have entered into a contract with the Simcoe Railway and Power Co., and the electors of the Corporation assented to a by-law authorizing the Corporation to enter into a contract with the Commission for such power.

1. NOW THEREFORE THIS INDENTURE WITNESSETH, that in consideration of the promises and of the agreements of the Corporation herein set forth, subject to the provisions of said Act and of the said contract, the Commission agrees with the Corporation:

(*a*) To reserve and deliver at the earliest possible date 200 h.p. or more of electric power to the Corporation.

(*b*) At the expiration of thirty days' notice in writing which may be given by the Corporation from time to time, during the continuance of this agreement, to reserve and deliver to the Corporation additional electric power when called for in blocks of 50 h.p. each until 500 is being delivered or reserved, and then in blocks of 100 h.p. each until the total amount so reserved or delivered shall amount to 1,600 h.p.

(*c*) To use at all times first-class, modern, standard commercial apparatus and plant, and to exercise all due skill and diligence so as to secure satisfactory operation of the plant and apparatus of the Corporation.

(*d*) The power shall be delivered to the Corporation at approximately 2,200 volts and at approximately 60 cycles per second.

2. In consideration of the premises and of the agreement herein set forth, the Corporation agrees with the Commission:—

(*a*) To use all diligence by every lawful means in its power to prepare for the receipt and use of the power dealt with by this agreement so as to be able to receive power when the Commission is ready to deliver the same.

(*b*) Subject to the provisions of paragraph 2 (*f*) hereof to pay the Commission the following prices: $20.00 per h.p. per annum for all power taken until the demands of the Commission on the Power Company shall equal or exceed 500 h.p.

When the demand of the Commission on the Power Company shall equal or exceed 500 h.p. to pay $19.00 per h.p. per annum for all or any proportion thereof taken by the Corporation.

When the demand of the Commission on the Power Company shall have increased to 1,000 h.p. to pay $18.50 per h.p. per annum for all or any proportion thereof taken by the Corporation.

Nothing herein contained shall bind the Commission to supply power on the demand of the Corporation after the demand of the Commission on the Power Company exceeds 1,600 h.p., unless the Power Company has power available or capable of development.

(*c*) To pay in addition annually, interest at 4 per cent. per annum upon the moneys expended by the Commission on capital account for the construction of the transmission lines from the Midland Station of the Simcoe Railway and Power Co., the transformer station and equipment in Penetanguishene, and other necessary works required for the delivery of power, and transforming it from 22,000 to 2,200 volts.

Also to pay an annual part of the cost of the construction of the said line, station and works so as to form in thirty (30) years a sinking fund for the payment of the moneys advanced by the Province of Ontario, in connection with this work.

Also to pay the cost of operating, maintaining, repairing, renewing, and insuring the said line, station and works.

(*d*) The amounts payable under this contract shall be paid in twelve monthly payments in gold coin of the present standard of weight and fineness, at the office of the Commission at Toronto, and Bills shall be rendered by the Commission on or before the 5th day and paid by the Corporation on or before the 15th day of each month. If any Bill remains unpaid for fifteen days, the Commission may, in addition to all

other remedies and without notice, discontinue the supply of power to the Corporation until said bill is paid. No such discontinuance shall relieve the Corporation from the performance of the covenants, provisoes and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*e*) To take electric power exclusively from the Commission during the continuance of this agreement.

(*f*) To pay for three-fourths of the power ordered from time to time by the Corporation and held in reserve for it as herein provided whether it takes the same or not. When the greatest amount of power taken for any twenty consecutive minutes during any month shall exceed during the twenty consecutive minutes three-fourths of the amount ordered by the Corporation and held in reserve, then the Corporation shall pay for this greater amount during the entire month.

If the Corporation during any month takes more than the amount of power ordered and held in reserve for it for twenty consecutive minutes, the taking of such excess shall thereafter constitute an obligation on the part of the Corporation to pay for and on the part of the Commission to hold in reserve an additional block of power in accordance with the terms and conditions of this contract.

When the power factor of the greatest amount of power taken for said twenty consecutive minutes falls below 90 per cent., the Corporation shall pay 90 per cent. of said power divided by the power factor.

(*g*) To use at all times first-class modern, standard commercial apparatus and plant, approved by the Commission.

(*h*) To exercise all due skill and diligence so as to secure satisfactory operation of the plant and apparatus of the Commission and the Corporation.

3. This agreement shall remain in force for ten years from the date of the expiration of the said first notice of 30 days. The Corporation may, at its option, continue this agreement for one or two further consecutive terms, the first of these two additional terms being of five years' duration, and the second of such length that the expiry thereof shall fall on the 10th day of September, 1929.

(*a*) Provided, however, that in the event of the Commission being in a position to furnish power either by a further agreement with the Simcoe Railway and Power Company or otherwise, the Corporation may, at its option, continue this agreement for a further term of twelve years' duration.

(*b*) The Corporation may exercise the first of these options by giving notice in writing of its intention to continue this agreement for the second term of five years at least two years before the expiration of the first term of ten years.

(*c*) The Corporation may exercise the second of these options by giving notice to the Commission in writing of its intention to continue this agreement for the third term until the expiry date on September 10th, 1929, at least two years before the expiration of the second term of five years.

(*d*) The Corporation may, subject to the conditions set out in paragraph 3 exercise the further option herein mentioned by giving the Commission notice in writing of its intention to continue this agreement for the further term of twelve years at least two years before the expiration of the term falling on the 10th day of September, 1929.

4. The power shall be approximately 2,200 volts, 60 cycle, 3 phase, alternating commercially continuous twenty-four hour power every day in the year except as provided herewith and shall be delivered by the Commission to the Corporation at the 2,200 volt terminals of the step-down transformers in the sub-station in the Corporation Limits.

(*a*) That the meters with their series or potential transformers may be connected to the high tension side or low tension side of the transformers, or some connected to one side and some connected to the other, as the Commission may elect. That whenever connected at other than the point of measurement their readings shall be subject to a correction and shall be corrected to give a reading such as would be obtained by instruments as if connected at the point of measurement. That such corrections shall be based upon tests made upon the step-down transformers and transmission lines by the Commission, or any other tests upon them acceptable to the Commission as to the efficiency, regulation, or any other constants of the transformers and transmission lines necessary for said correction, but that such tests, when made by the Commission, are to be made in the presence of the representative or representatives of the Customer if it so desires.

(*b*) The maintenance by the Commission of approximately the agreed voltage at approximately the agreed frequency at the sub-station in the limits of the Corporation shall constitute the supply of all power involved herein and the fulfilment of all operating obligations hereunder; and when voltage and frequency are so maintained, the amount of the power, its fluctuations, load factor, power factor, distribution as to phases and all other electric characteristics and qualities are under the sole control of the Corporation their guests, customers, apparatus, appliances and circuits.

5. The engineers of the Commission, or one or more of them, or any other person or persons appointed for this purpose by the Commission, shall have the right from time to time during the continuance of this agreement to inspect the apparatus, plant and property of the Corporation and take records at all reasonable hours.

6. In case the Commission should at any time or times be prevented from supplying said power, or any part thereof, or in case the

Corporation shall at any time be prevented from taking said power, or any part thereof, by strike, lock-out, fire, invasion, explosion, act of God, or the King's enemies, or any other cause reasonably beyond their control, then the Commission shall not be bound to deliver such power during such times, and the Corporation shall not be bound to pay the price of said power during such time, but as soon as the cause of such interruption is removed, the Commission shall without any delay supply said power as aforesaid, and the Corporation shall take the same and shall be prompt and diligent in removing and overcoming such cause or causes of interruption.

7. If, and so often as, any interruption shall occur in the service of the Power Company due to any cause or causes, other than those provided for by the next preceding paragraph hereof, the Commission shall recover and pay to the Corporation as liquidated and ascertained damages, and not by way of penalty, as follows:—For any interruption of less than one hour double the amount payable for power which should have been supplied during the time of such interruption; and for any interruption of one hour or more the amount payable for the power which should hape been delivered during the time of such interruption, and six times the last mentioned amount in addition thereto, and all moneys payable under this paragraph, when the amount thereof is settled between the Commission and the Company, may be deducted from any money payable by the Corporation to the Commission, but such right of deduction shall not in any case delay the said monthly payments.

8. If at any other time any other Municipal Corporation or pursuant to said Act, any Railway or distributing company, or any other Corporation or person, applies to the Commission for a supply of power, the Commission shall notify the applicant and the Corporation in writing, of a time and place and hear all representations that may be made as to the terms and conditions for such supply.

Without discriminating in favor of the applicants as to the price to be paid, for equal quantity of power, the Commission may supply power upon such terms and conditions as may, having regard to the risk and expense incurred, and paid, and to be paid by the Corporation, and are approved by the Lieutenant-Governor-in-Council.

No such application shall be granted if the said line is not adequate for such supply, or if the supply of the Corporation will be thereby injuriously affected, and no power shall be supplied within the limits of a Municipal Corporation taking power from the Commission at the time of such application without the written consent of such Corporation.

In determining the quantity of power supplied to a Municipal Corporation, the quantity supplied by the Commission within the limits of the Corporation to any applicant, other than a Municipal Corporation, shall be computed as part of the quantity supplied to such Corporation, but such Corporation shall not be liable to pay for the power so supplied, or otherwise in respect thereof. In order to prevent discrimination by the Municipal Corporation, no power shall be supplied by the Municipal Corporation to any railway or distributing company without the written

consent of the Commission, but the Corporation may sell power to any person or persons or manufacturing companies inside the limits of the Corporation, but such power shall not be sold for less than the cost and without discrimination as regards price and quantity.

9. In case any Municipal Corporation, or any person, firm or Corporation which shall contract with the Commission or with any Municipal Corporation for a supply of power furnished to the Commission by the Power Company shall suffer damages by the act or neglect of the Power Company, and such Municipal Corporation, person, firm or Corporation would, if the Power Company had made the said contracts directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such Municipal Corporation, person, firm, or Corporation, and notwithstanding any Acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such Municipal Corporation, person, firm or Corporation, including the right to recover such damages, but no action shall be brought by the Commission until such Municipal Corporation, person, firm or Corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceedings or action is unsuccessful. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

10. If differences arise between Corporations to whom the Commission is supplying power, the Commission may upon application fix a time and place to hear all representations that may be made by the parties and the Commission shall, in a summary manner when possible, adjust such differences and such adjustment shall be final. The Commission shall have all the powers that may be conferred upon a Commissioner appointed under the Act respecting Enquiries concerning public matters.

11. If differences arise between the Corporation and the Commission, the Lieutenant-Governor-in-Council may, upon application, fix a time and place to hear all representations that may be made by the parties, and the Lieutenant-Governor-in-Council shall, in a summary manner, when possible, adjust such differences and such adjustment shall be final. The Lieutenant-Governor-in-Council shall have all the powers that may be conferred upon a Commissioner appointed under the Act respecting Enquiries concerning public matters.

12. This agreement shall extend to, be binding upon and enure to the benefit of the successors and assigns of the parties hereto.

IN WITNESS WHEREOF the Commission and the Corporation have respectively affixed their corporate seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED in the presence of

HYDRO-ELECTRIC POWER COMMISSION.
(Sgd.) A. BECK, *Chairman.*
(Sgd.) J. S. HENDRIE.

[SEAL.]

[SEAL.]

CORPORATION OF TOWN OF PENETANGUISHENE.
(Sgd.) J. A. JENNINGS, *Mayor.*
W. H. HEWSON, *Town Clerk.*

THIS AGREEMENT dated the Nineteenth Day of September, A.D. 1911.

BETWEEN—

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO herein called the "Commission" the First Party,

— and —

THE DOMINION SEWER PIPE CO., LIMITED, herein called the "Customer" the Second Party.

WITNESSETH:

1. The Commission agrees with the Customer to deliever as soon as possible after September 15th, 1911, 200 horse power of electrical power to the Customer at the terminals of the step-down transformers located on the Customer's premises south of Waterdown, in the Township of East Flamboro, Concession 1, Lot 3.

2. The Customer agrees with the Commission:

(*a*) To take power exclusively from the Commission for ten years from the date such is available for their use and not to sell or dispose of the said power, or any part thereof, directly or indirectly, without the written consent of the Commission. If as therein provided the contracts with the Ontario Power Company are continued until 19th December, 1939, the Customer shall be entitled to renew this agreement for a further consecutive term of ten years by giving three months' previous notice in writing of intention to renew.

(*b*) To contract for 200 horse power and to pay each month for the greatest amount of power taken for any 1½ consecutive minutes during that month, at the rate of $32.50 per H.P. per annum, and to commence such payments within one month from the date of written notice from the Commission that power is available for use.

(*c*) To pay each month as a minimum for 75 per cent. of the amount of power contracted for or held in reserve.

(*d*) At all times to take and use the three phase power in such a manner that the current will be equally taken from the three phases, and in no case shall the difference between any two phases be greater than three per cent. The Customer shall at all times take and use three phase power in such a manner that the power factor will be as near one hundred per cent. as possible. Whenever it is not possible to take current at 100 per cent. P.F. and the power factor of the greatest amount of power taken for said one and one-half minutes is less than 90 per cent., the Customer shall pay for 90 per cent. of the said power divided by the power factor.

(*e*) The Customer shall furnish sufficient and proper space in his transformer station or some other suitable building for the installation of the Protective, Control and transforming equipment necessary to protect, step down and control the power delivered, and shall operate this equipment under the instructions of the Commission. The Customer shall also provide the right-of-way for the transmission line selected by the Commission across property owned by the Customer and keep the same clear of all buildings, trees, brush, etc., for a distance of one rod on either side of the centre line during the continuance of this contract. The Commission shall have the right to inspect and repair apparatus.

(*f*) The Commission shall be entitled, at the termination of this agreement to remove all the Commission's plant and equipment on the Customer's premises including transformers, protective and control equipment.

3. It is further agreed:—

(*a*) If at any time the Customer's demand for power exceeds the amount held in reserve or an amount greater than that then permissible by the terms of this agreement, the amount held in reserve shall thereby be automatically increased by an amount equal to such excess above the specified or permissible amount held in reserve, and such increased amount shall thereafter be purchased and paid for until a greater amount shall be taken in accordance with terms of this contract, or by, or on account of another demand for power above that permissible by the terms of this contract.

(*b*) Payments shall be made in gold coin of the present standard of weight and fineness, and bills shall be rendered by the Commission on or before the first and paid by the Customer on or before the fifteenth of each month. If any bill remains unpaid for fifteen days, the Commission may, in addition to all other remedies and without notice, discontinue the supply of such power to the Customer in default until such bill is paid. No such discontinuance shall relieve the Customer in default from the performance of the covenants, provisoes and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*c*) Said power shall be three phase, alternating at a periodicity of approximately 25 cycles, and at approximately 2,300 volts, and shall be commercially continuous 24 hour power every day of the year except as provided for hereunder.

The maintenance by the Commission of approximately the agreed voltage, at approximately the agreed frequency at the 2,200 volt terminals of the step down transformers at the point of delivery, shall constitute a supply of all power involved herein, and the fulfilment of all the operating obligations hereunder, and when the voltage and frequency are so maintained, the amount of power, its fluctuations, load factor, power factor, distribution as to phases and all other characteristics and qualities are under the sole control of the Customer, his agents, apparatus, appliances and circuits.

(*d*) The step down transformers and controlling apparatus shall be furnished, kept and maintained in good order by the Commission and the Customer shall select and use transformers and apparatus suitable to receive the electric power produced by the apparatus of the Commission. Also the Customer's transmitting, transforming, translating, and wherever possible all other apparatus and devices upon his circuits shall be first-class, modern, standard design and construction in commercial use and shall be operated and maintained with special reference to securing high efficiency and good operation, not only of its own, but also of the apparatus of the Customer when receiving power from the Commission; and the Customer shall install upon and equip his circuits with such approved protective devices as are in commercial use and operate its circuits in such a manner as will to the then greatest extent protect the apparatus and circuits of the Commission, and its own apparatus and circuits from damage and interruption from lightning, short circuiting and otherwise; all apparatus, machinery, and wiring to be approved of by the Commission.

(*e*) The Commission agrees to sell to the Customer at any time during the continuance of this contract the transformer and step down equipment installed in the Customer's buildings by the Commission. The price to be paid for this apparatus will be the capital cost less any amount set by for sinking fund and depreciation that has not been required for repairs or renewals.

(*f*) In case the Commission shall be prevented from delivering said electric power for one-half hour continuously, or in case the Customer shall be prevented from receiving said electric power for one-half hour continuously, by strike, riot, fire, lightning, invasion, explosion, act of God or the public enemies, or any other cause reasonably beyond the control, then the Customer shall not be liable to pay for such power during such period, but nothing herein contained shall be construed as permitting the Commission to refuse to deliver power or the Customer to refuse to receive the same as soon as the cause of interruption is removed, and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes.

(*g*) The Commission may at any time between the hours of one o'clock and five o'clock a.m. on any one day in the month, during the term of this contract, suspend the delivery of electric power under this contract, for the purpose of making repairs upon or improvements in any part of its transmission or distributing system, provided, however, that the Commission shall in every case give to the Customer such reasonable notice thereof as circumstances will permit. Deduction in this case shall be in accordance with 3 (*e*). If however, by prearrangement with, and consent of the Customer, the delivery of electric power should be suspended for the above purposes for more than one day above provided for, or at any other hours than those specified, deduction for such additional time or times shall be in accordance with 3 (*e*).

(*h*) In case any Municipal Corporation or any person, firm or corporation, which shall contract with any such Municipal Corporation, or with the Commission for a supply of power, shall suffer damages by the act or neglect of the Customer, and such Municipal Corporation, person, firm or corporation, would, if the Customer had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such Municipal Corporation, person, firm or corporation, and notwithstanding any Acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such Municipal Corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such Municipal Corporation, person, firm or Corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid if such proceeding or action is unsuccessful. The rights and remedies of any such Municipal Corporation, person, firm or corporation shall not be hereby prejudiced. The customer to be held responsible for any injuries or damages to persons sustained in the operation of the said equipment, and shall indemnify and save harmless the Commission from all such damage.

(*i*) This agreement shall extend to, and be binding upon and enure to the benefit of the successors and assigns of the parties hereto respectively.

IN WITNESS WHEREOF the parties hereto have affixed their seals, and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED in the presence of

THE DOMINION SEWER PIPE COMPANY, LIMITED.

(Sgd.) A. M. DENOVAN, *Vice-President.*

[SEAL.] (Sgd.) F. K. WALLIS, *Secretary.*

HYDRO-ELECTRIC POWER COMMISSION.

[SEAL.] (Sgd.) A. BECK, *Chairman.*

(Sgd.) W. W. POPE, *Secretary.*

THIS AGREEMENT made this Sixteenth Day of October, A.D. 1911.

BETWEEN—

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, herein called the "Commission" Party of the First Party,

— and —

THE STANDARD WHITE LIME COMPANY, LIMITED, herein called the "Company," Party of the Second Part.

WITNESSETH:

1. The Commission agrees with the Customer to deliver as soon as possible after October 15th, 1911, fifty (50) horse power of electrical power to the Customer at the terminals of the step-down transformers located on the Customer's premises, Lot Concession in the Township of North Oxford, County of Oxford, in the Province of Ontario.

2. The Customer agrees with the Commission:

(*a*) To take power exclusively from the Commission for ten years from the date hereof and not to sell or dispose of said power or any part thereof directly or indirectly without the written consent of the Commission. If as therein provided the contracts with the Ontario Power Company and the Commission are continued until 19th of December, A.D. 1919, the Customer shall be entitled to renew this agreement for a further consecutive term of ten years by giving the Commission three months' previous notice in writing of their intention to renew.

(*b*) To contract for fifty (50) horse power of electrical power and to pay each month for the greatest amount of power taken for any one (1) minute during that month at the rate of thirty-nine dollars and fifty cents ($39.50) per horse power per annum, and to commence such payments within one month from the date of the receipt of written notice from the Commission that power is available for use.

(*c*) To pay each month as a minimum of 75 per cent. of the amount of power contracted for or held in reserve.

(*d*) At all times to take and use the three-phase power in such a manner that the current will be equally taken from the three phases, and in no case shall the difference between the two phases be greater than three per cent. The Customer shall at all times take and use three phase power in such a manner that the power factor will be as near one hundred per cent. as possible. Wherever it is not possible to take current at 100 per cent. P.F. and the power factor of the greatest amount of power taken for said one minute is less than 90 per cent., the Customer shall pay for 90 per cent. of the said power divided by the power factor.

(*e*) The power shall be measured at the point of delivery or at the nearest suitable available point. The meters for the measurement of electrical power shall be provided installed and kept in repair by the Commission. The Customer if called upon by the Commission to do so shall furnish sufficient and proper space in his building or some other suitable place for the installation operation and maintenance of the meters and the necessary series and potentill transformers for use with the said meters.

The Customer shall also provide the right of way for the transmission line selected by the Commission across the property owned or controlled by the Customer and keep the same clear of all buildings, trees and brush for a distance of one rod on each side of the centre line during the continuance of this agreement.

(*f*) The Commission shall be entitled at the expiration of this agreement to remove all the Commission's plant, apparatus or equipment from the Customer's premises, including all meters, transformers, etc.

3. It is further agreed:

(*a*) If at any time the demand for power exceeds the amount held in reserve or an amount greater than that then permissible by the terms of this agreement, the amount held in reserve shall thereby automatically increase by an amount equal to such excess above the specified or permissible amount held in reserve, and such increased amount shall thereafter be purchased and paid for until a greater amount shall be taken in accordance with the terms of this contract, or by, or on account of another demand for power above that permissible by the terms of this contract.

(*b*) Payments shall be made in gold coin of the present standard of weight and fineness and bills shall be rendered by the Commission on or before the first, and paid by the Customer on or before the fifteenth of each month. If any bill remains unpaid for fifteen days, the Commission may, in addition to all other remedies and without notice, discontinue the supply of such power to the Customer in default until such bill is paid. No such discontinuance shall relieve the Customer in default from the performance of the covenants, provisoes and conditions herein contained. All payments in arrears shall bear interest at the legal rate.

(*c*) Said power shall be three-phase, alternating at a periodicity of approximately 25 cycles, and at approximately 550 volts, and shall be commercially continuous 24 hour power every day of the year except as provided hereunder.

The maintenance by the Commission of approximately the agreed voltage, at approximately the agreed frequency at the 550 volt terminals of the step-down transformers at the point of delivery shall constitute a supply of all power involved herein and the fulfilment of all the operating obligations hereunder, and when the voltage and frequency are so maintained, the amount of power, its fluctuations, load factor, power

factor, distribution as to phases and all other characteristics and qualities are under the sole control of the Customer, his agents, apparatus, appliances and circuits.

(*d*) The step down transformers and controlling apparatus shall be furnished, kept and maintained in good order by the Commission and the customer shall select and use transformers and apparatus suitable to receive the electric power produced by the apparatus of the Commission. Also the Customer's transmitting, transforming, translating, and wherever possible all other apparatus and devices upon his circuits shall be first-class, modern, standard design and construction in commercial use and shall be operated and maintained with special reference to securing high efficiency and good operation, not only of its own, but also of the apparatus of the Customer when receiving power from the Commission; and the Customer shall install upon and equip his circuits with such approved protective devices as are in commercial use and operate its circuits in such a manner as will to the then greatest extent protect the apparatus and circuits of the Commission, and its own apparatus and circuits from damage and interruption from lightning, short circuiting and otherwise; all apparatus, machinery and wiring to be approved of by the Commission.

(*e*) In case the Commission shall be prevented from delivering said electric power for one-half hour continuously, or in case the Customer shall be prevented from receiving said electric power for one-half hour continuously, by strike, riot, fire, lightning, invasion, explosion, act of God or the public enemies or any other cause reasonably beyond its control, then the Customer shall not be liable to pay for such power during such period but nothing herein contained shall be construed as permitting the Commission to refuse to deliver power or the Customer to refuse to receive the same as soon as the cause of interruption is removed, and each of the parties hereto shall be prompt and diligent in removing and overcoming such cause or causes.

(*f*) The Commission may at any time between the hours of one o'clock and five o'clock a.m., on any day in the month, during the term of this contract, suspend the delivery of electric power under this contract, for the purpose of making repairs upon or improvements in any part of its transmission or distributing system, provided, however, that the Commission shall in every case give to the customer such reasonable notice thereof as circumstances will permit. Deduction in this case shall be in accordance with 3 (*e*). If however by prearrangement with, and consent of the customer, the delivery of electric power should be suspended for the above purposes for more than one day above provided for, or at any other hours than those specified, deduction for such additional time or times shall be in accordance with 3 (*e*).

(*g*) This agreement shall extend to, and be binding upon and enure to the benefit of the successors and assigns of the parties hereto respectively.

IN WITNESS WHEREOF the parties hereto have affixed their seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED in the presence of

[SEAL.]

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.
(Sgd.) A BECK, *Chairman.*
(Sgd.) W. W. POPE.
Secretary.

[SEAL.]

THE STANDARD WHITE LIME COMPANY, LIMITED.
(Sgd.) JOHN KENNEDY.
President.

RIGHT OF WAY.

Organization.

The organization employed to secure right-of-way for the transmission lines was under the direct supervision of the Solicitor of the Commission until the fall of 1909, after which date the newly-appointed secretary was placed in charge of these operations and all payments made by the Commission itself. At that time, a chief agent and three assistants constituted the right-of-way organization.

Legal Proceedings.

The acquisition of the necessary contracts and agreements was made extremely difficult, particularly between Niagara Falls, Dundas and Toronto, chiefly because of the continued agitation provoked by the opponents of the power scheme, who, later in November, 1909, resorted to court proceedings, and applied for an injunction to restrain the Commission on the ground that the Power Commission Act of 1909 did not authorize it to acquire easements. This injunction was granted and heard before Chief Justice Sir Glenholm Falconbridge at the sittings of the Assizes held in Toronto, in January, 1910, at which hearing the injunction was dissolved and the action dismissed. An appeal was then entered against this judgment to the Court of Appeal, but at the Sitting of that Court, the judgment of the Lower Court was sustained. It was further claimed in this latter litigation that the Power Commission Act of 1909, did not clearly specify the method which should be employed in determining the amount of the remuneration, if any, to be paid to the property owners, upon whose land the Commission had secured easements. The enactment of "The Power Commission Act of 1910" makes clear the powers of the Commission, and settled this dispute.

High Tension Lines.

Notwithstanding these legal proceedings, right-of-way for upwards of two hundred miles of high tension line was acquired together with the necessary agreements and easements from nearly two thousand different property owners. Only seven arbitrations were held over the amount of remuneration to be paid, and in the majority of cases, the previous offers of the Commission were practically sustained by the final awards.

Considerable difficulty was experienced with the farmers on whose land easements had been secured, relative to the cutting and removal of trees likely to interfere with the transmission lines, and as a result, the Commission finally organized tree cutting gangs, which, under its direction, cut and removed the necessary trees on these properties as well as along the public highways.

Telephone and Relay Lines.

Right-of-way for the construction of 290 miles of telephone and relay line both across private properties and along the public highways was also acquired at the same time, and agreements and easements were secured, for a period of thirty years with the privilege of renewal at the expiration of the term, which provided a route one rod wide clear of all buildings, trees and obstacles, and permitted the erection of poles, stringing of wires, cutting and removal of all and any trees which would interfere with the line. Arrangements were also made with the Town Coun-

cils where the line passed along public highways for cutting and removing the trees along the roadside, and negotiations made with adjoining property owners for the privilege of placing necessary guys and braces on their land. These operations involved an immense amount of time for the right-of-way staff, but the work was practically completed during the year 1910, and the right-of-way staff reduced to a chief agent and one assistant.

Low Tension Lines.

The construction of low tension lines was started in June, 1910. The Commission having decided to supervise the construction of the lines instructed its agents to acquire the necessary right-of-way and agreements for placing poles across private properties as well as along public highways. Privileges similar to those obtained for the high tension and telephone lines, i.e., to cut and remove those trees likely to interfere with the line, were also secured, gangs organized which cleared 120 miles of right-of-way across private properties, and between 150 and 160 miles along the public highways.

CROSSINGS.

The provisions of the Dominion Railway Act relating to high and low tension transmission lines crossing either over or under the tracks of steam or electric railway, or the lines of telegraph or telephone companies, require that application to secure sanction for these constructions, be made to the Board of Railway Commissioners at Ottawa. The applications must then be ratified in an Order issued by the Board, and the crossings after completion, inspected and approved by the Government Electrical Engineer before the lines can be placed in operation.

The Commission filed applications for permission to construct 250 high tension, and 60 low tension crossings. Surveys were made and triplicate plans prepared, which, with a large amount of correspondence relating to interviews and negotiations involving a large amount of work for the engineering and secretarial departments were furnished in every case to the Railway Commission as well as the companies interested, and orders secured from the Railway Boards at Ottawa and Toronto covering the same.

CHAPTER II.

TRANSMISSION SYSTEM.

HIGH TENSION LINES

Surveys.

All preliminary surveys had been practically completed in 1909, but it was necessary to keep several small transit parties in the field to locate towers in advance of the contractor's construction gang. There were three of these parties, each consisting of four men, including the transit men, employed on November 1st, 1909. Party No. 1 was at that time working between Preston and Berlin in Section "G"; Party No. 2, west from Dundas towards Woodstock in Section "C"; and Party No. 3, between Guelph and Preston in Section "G." The following tower locations had been established at this date by these organizations:—

Sec. "A"—Line completed, 568 towers in all.
Sec. "B"—Location completed from Dundas to Etobicoke Creek, 325 towers.
Sec. "C"—Location completed to Tower No. 62.
Sec. "E"—Location completed to Tower No. 212.

Party No. 1 started working in Section "A" on July 4th, 1909, and Parties No. 2 and 3 were ordered into the field when the contractor's rate of progress required them.

A number of men were laid off or transferred to other work at the end of November, 1909, and one party organized which worked all winter in Sec. "E" between Woodstock and London, and also located the line in Sec. "K" between London and St. Thomas.

This party was further divided in March, one division starting to locate towers in Section "E," while the other, after completing the tower locations from Etobicoke Creek to Toronto City limits, was transferred to Sec. "K." The work of tower location was completed throughout the system by the end of July, 1910, and the last party disbanded. In addition to the regular work of locating towers, these parties also made detailed surveys and profiles of all railroad, transmission, telephone and telegraph line crossings. There were about one hundred and sixty of these crossings for which the Board of Railway Commissioners required plans before construction could be commenced.

It was also necessary to make a special survey of the route from the Toronto City Limits to the Strachan Avenue Station. Special towers were required for this portion of the line, eighteen of which were located in the water along the Lake Shore.

Organization.

The contractor's field organization was the same in 1910 as in 1909, and consisted of tower footing, tower assembling and tower erecting gangs. In October, 1909, insulator erecting gangs started work, and in May, 1910, cable erecting

gangs were added to the organization. Inspectors accompanied all construction gangs, as in 1909, to check and supervise the details of construction in the interests of the Commission.

The engineer in charge of transmission line construction had the general supervision of the work, and was assisted by resident engineers who were in charge of certain sections. Two resident engineers were able to cover the work until March, 1910, when an increase in the contractor's working force with the coming of spring made it necessary to employ a third resident engineer and divide the territory into three instead of two sections, as follows:—Section No. 1 from Niagara Falls to Woodstock, Section No. 2 from Toronto to St. Mary's, Section No. 3 from

Standard Single Circuit Tower.

Woodstock to London and from St. Mary's to St. Thomas. The latter organization was maintained until the completion of the contract and the various construction gangs were disbanded as their portion of the work was completed.

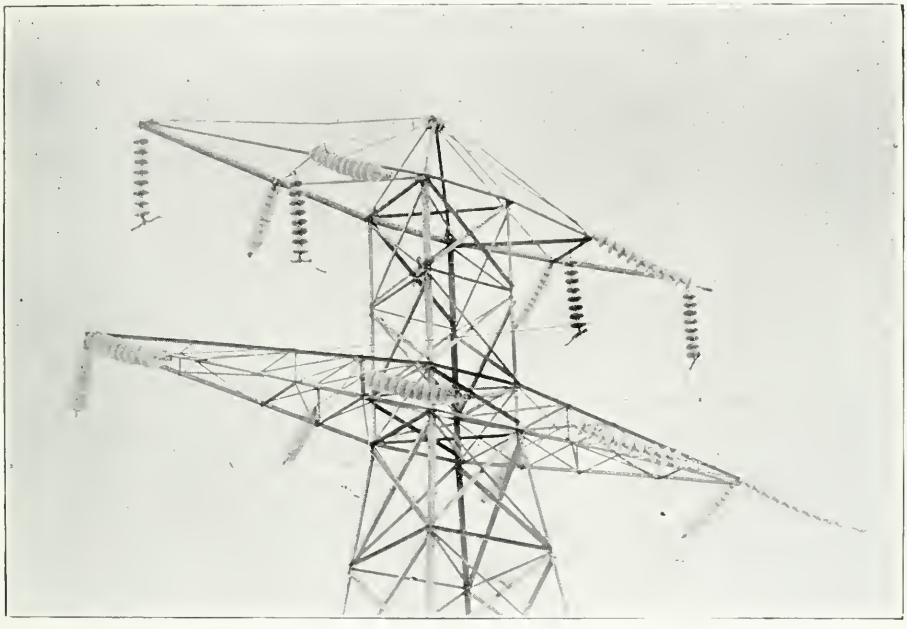
Progress of Construction,

The Construction work accomplished by the contractor up to October 31st, 1909, may be briefly summarized as follows:—

Towers delivered in the field	570
Tower footings set	430
Towers assembled	380
Towers erected	375
Insulators erected	888

The construction work remaining to be done at the beginning of the fiscal year of 1910 was as follows:—

Towers to be delivered in field	2,470	
Tower footings to be set	2,610	
Towers to be assembled	2,260	
Towers to be erected	2,665	
Insulators to be erected	13,008	
Power cable to be erected	1,103.4	miles.
Ground cable to be erected	708.3	miles.

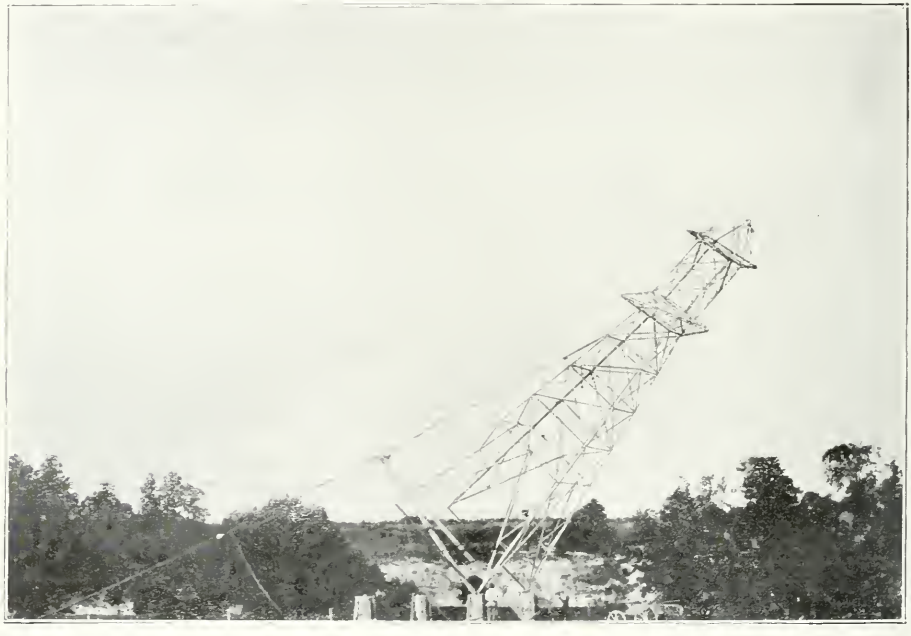


Details Transposition Tower.

The ground organization employed during the winter differed but little from that of the summer. A considerable amount of special work was done on tower footings, notably the rock footings for the line towers between Guelph and Preston, and the footings in the Puslinch Swamp between Dundas and Guelph. Also a large number of wet footings were placed which had been purposely neglected during the summer in order that as much footing construction as possible might be completed in the dry locations under favorable working conditions. Owing to the necessity for shoring, sheet-piling and unwatering, the work on wet footings was very slow, but the costs were less than if this work had been done in summer, as the ground water was low and the muck more or less frozen.

Steel was delivered throughout the winter, and the assembling and erection of towers as well as the suspension of insulators was continued. The low teaming costs made possible by the winter were advantageous for the delivery of material, particularly the steel.

The contractor materially increased his construction force in the spring of 1910, and by the end of April work on the towers was being carried on simultaneously in Section "A," Niagara Falls to Dundas; Section "B," Dundas to Toronto; Section "C," Dundas to Paris; Section "D," Paris to Woodstock; Section "E," Woodstock to London; and Section "H," Berlin to Stratford. During the first week in May, 1910, a cable erecting gang was added to the organization. This gang, starting at Guelph, worked south towards Dundas. Shortly after, two more cable gangs were organized, and by the end of June, 1910, the maximum working force of the contractor was in the field. One complete construction force unit of about 92 men, including a footing, assembling, erecting and cable gang could, at this time, complete one-half mile of double, or three-quarters of a mile of single-circuit line in a working day under average conditions.



Tower Erection.

The work was continued throughout the summer without interruption, and the gangs disbanded as various classes of work were completed. Exclusive of the organization later employed in constructing the three miles of line within the City Limits of Toronto, the cable gangs were the last in the field, and erected the final section of aluminum cable on December 17th, 1910. During the period of eighteen months from July 15th, 1909, a total of 278 miles of high tension line had been constructed.

The city had not provided the right-of-way between the City Limits of Toronto and the Strachan Avenue Station by the 17th of December, as previously agreed, and as a result about three miles of the necessary 281 miles of high tension line remained unfinished at this date.

The first tower was erected on July 22nd, 1909, and the last, exclusive of the Toronto entrance, on November 15th, 1910. The first cable was erected on May

23rd, 1910, and the last on December 17th, 1910. During this latter period of seven months, about 1,103 miles of aluminum and 708 miles of steel ground cable had been erected. The best progress was made during the month of October, 1910, when 211.5 miles of aluminum and 117.5 miles of ground cable were strung.

A summary of work done under the McGuigan contract up to date of completion, December 17th, 1910, is as follows:—

SEC. "A"—NIAGARA FALLS TO DUNDAS.

Distance—51 miles.	
Number of towers erected complete	568
Number of insulators erected complete	3,912
Mileage of power cable erected	312.2
Mileage of ground cable erected	207.7

SEC. "B"—DUNDAS TO TORONTO (CITY LIMITS).

Distance—39.1 miles.	
Number of towers erected complete	431
Number of insulators erected complete	3,102
Mileage of power cable erected	216.7
Mileage of ground cable erected	155.0

SEC. "C"—DUNDAS TO PARIS.

Distance—22.6 miles.	
Number of towers erected complete	251
Number of insulators erected complete	834
Mileage of power cable erected	68.5
Mileage of ground cable erected	45.6

SEC. "D"—PARIS TO WOODSTOCK.

Distance—21.8 miles.	
Number of towers erected complete	231
Number of insulators erected complete	756
Mileage of power cable erected	66.1
Mileage of ground cable erected	44.0

SEC. "E"—WOODSTOCK TO LONDON.

Distance—25.4 miles.	
Number of towers erected complete	278
Number of insulators erected complete	924
Mileage of power cable erected	76.2
Mileage of ground cable erected	51.3

SEC. "F"—DUNDAS TO GUELPH.

Distance—25.3 miles.	
Number of towers erected complete	270
Number of insulators erected complete	885
Mileage of power cable erected	76.7
Mileage of ground cable erected	51.1

Sec. "G"—Guelph to Berlin.

Distance—19.1 miles.	
Number of towers erected complete	206
Number of insulators erected complete	705
Mileage of power cable erected	57.9
Mileage of ground cable erected	38.6

Sec. "H"—Berlin to Stratford.

Distance—25.1 miles.	
Number of towers erected complete	267
Number of insulators erected complete	861
Mileage of power cable erected	76.1
Mileage of ground cable erected	50.7

Sec. "I"—Stratford to St. Marys.

Distance—13.5 miles.	
Number of towers erected complete	147
Number of insulators erected complete	510
Milage of power cable erected	40.9
Mileage of ground cable erected	13.6

Sec. "J"—St. Marys to London.

Distance—23.6 miles.	
Number of towers erected complete	250
Number of insulators erected complete	867
Mileage of power cable erected	71.5
Mileage of ground cable erected	23.8

Sec. "K"—London to St. Thomas.

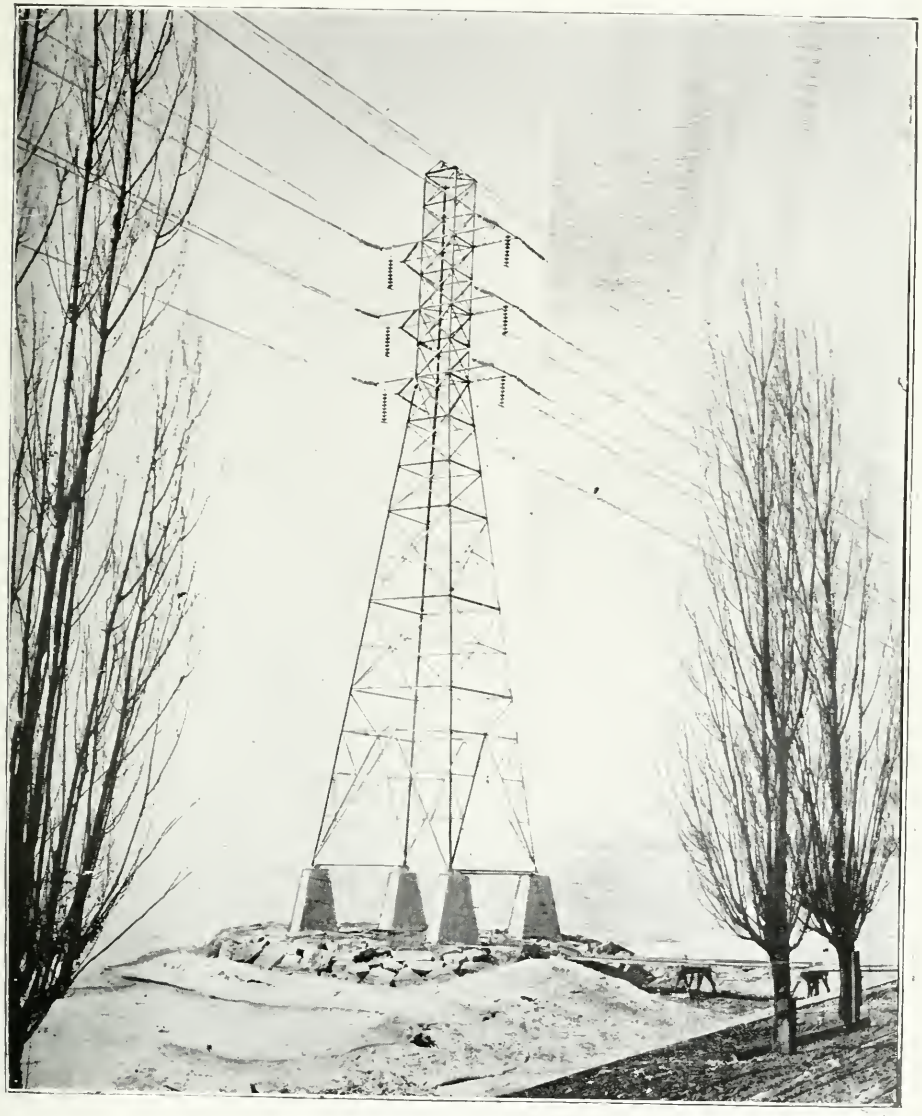
Distance—13.4 miles.	
Number of towers erected complete	141
Number of insulators erected complete	540
Mileage of power cable erected	40.6
Mileage of ground cable erected	26.9

Total of All Sections.

Total Mileage	280.3
Total number of towers erected complete	3,040
Total number of insulators erected complete	13,896
Total mileage of power cable erected	1,103.4
Total mileage of ground cable erected	708.3

Special Constructions.

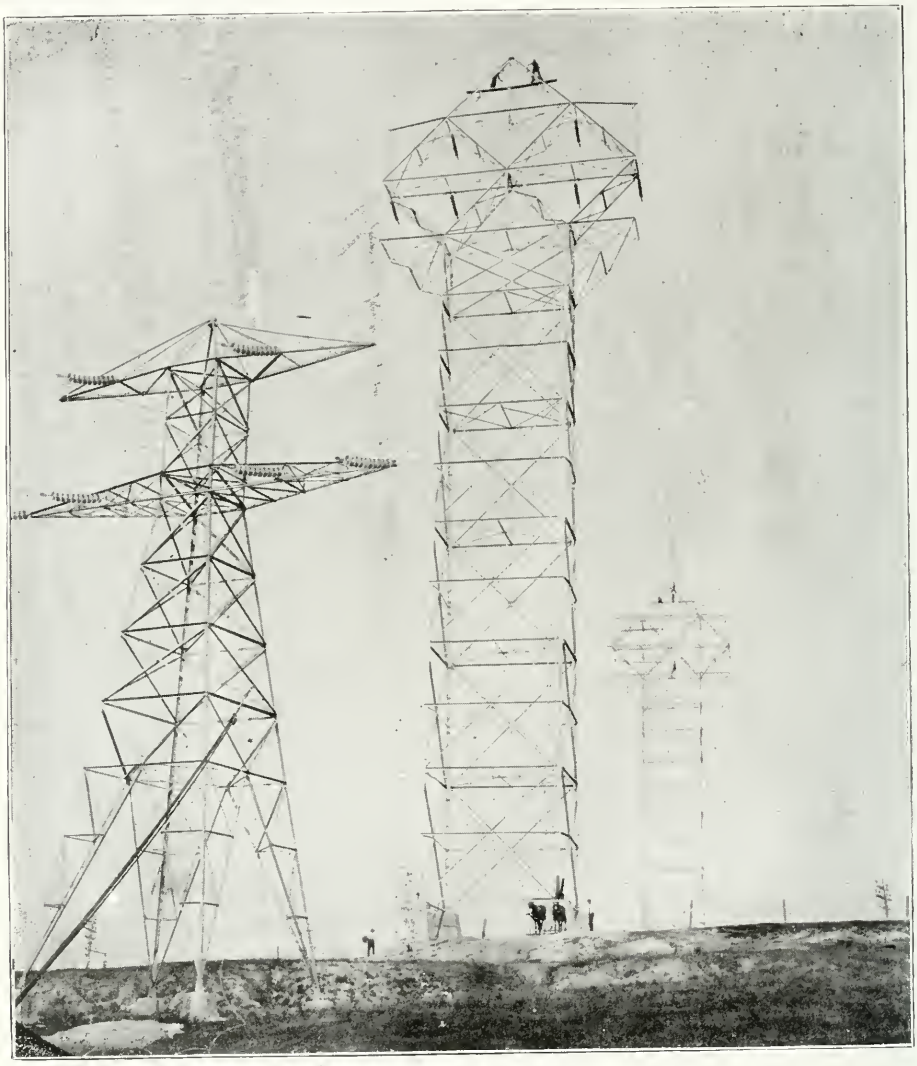
The most important special construction was the three miles of line between the Toronto City Limits and the Strachan Avenue Station. Owing to the grade separation work on the Grand Trunk and the City's work on the sea-wall, there was considerable delay in the negotiations with the Board of Railway Commis-



Toronto Entrance Tower.

sioners and the final acquisition of the necessary right-of-way. The original survey located the line through High Park parallel to the Grand Trunk tracks, but when the Railway Company's plans were completed it was found that the railway required so much space that it was not feasible to parallel their tracks. The locations finally decided upon follow the lake shore from Grenadier Pond to Jameson

Avenue. Here they leave the shore and run diagonally across to the north-west corner and along the north side of the Exhibition Grounds, and then diagonally across Garrison Commons to the station at the foot of Strachan Avenue. Forty towers with an over-all height above piers of approximately 100 ft., and designed to support the conductors with a minimum clearance of 70 ft. above ground, were required for this line. These towers were built on reinforced concrete footings,



Welland Canal Crossing.

eighteen of which were located in from two to five feet of water along the lake shore, with their tops 15 ft. above water level. The pier bases in the lake were protected by heavy hand-laid rip-rap and further reinforced by steel girders tied into the tops of the piers. The work on this portion of the line was begun on the 25th of September, 1910, and completed about the 15th of April, 1911. The slow progress results from the heavy nature of the work, and unfavorable weather

conditions, which caused the destruction of large sections of the coffer-dams and other temporary structures, the work having been seriously delayed on more than one occasion by storms. The necessity of erecting the towers piece by piece also gave cause for slow progress, since their location and weight made it impossible to erect them after assembly, as had been done on the rest of the line. It was also very difficult to keep men on the towers during the cold weather, and as a consequence, the progress of the cable erection was considerably delayed.

Another important piece of special construction was necessary seven miles west of Niagara Falls at the Welland Canal, where a minimum water-way clearance of 150 ft. is required by the Department of Railways and Canals. To comply with these requirements two towers were built each weighing twenty-five tons and having an over-all height of 168 ft. These were erected on heavy reinforced concrete footings on either side of the canal. The length of the crossing span is 419 ft.

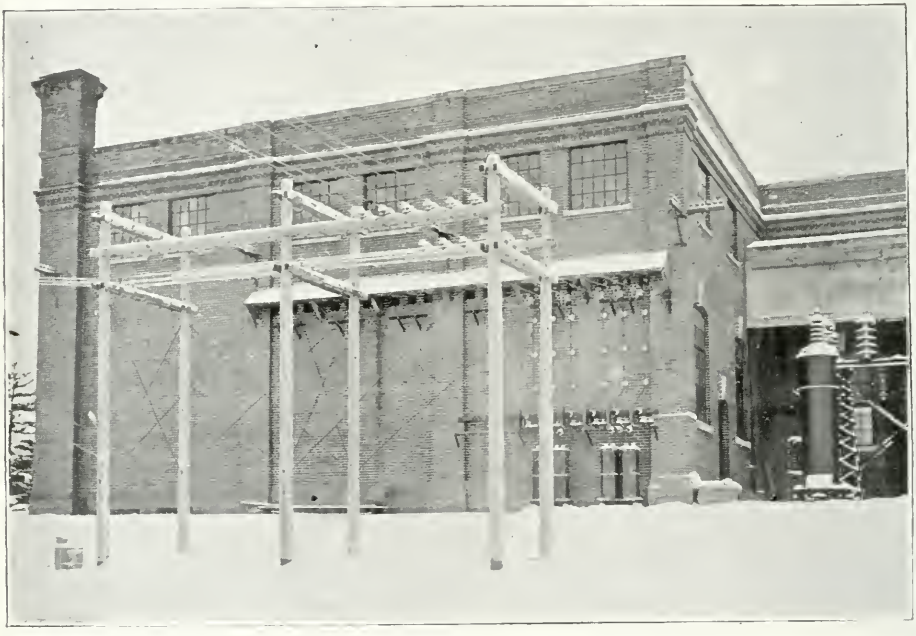
At Libby Lake, ten miles west of Paris, it was found necessary to place a corner tower on solid bottom, 17 ft. below water-level. A pile cluster foundation capped with a heavy reinforced concrete pier was employed. The same type of construction was also used in crossing the Humber River, a short distance north of the lake shore road.

LOW TENSION LINES.

The Commission first directed its attention to the construction of low tension lines in January, 1910, and sent an engineer to Hamilton to locate a suitable route for a line from the Dundas Transformer Station to the Beach Pump Station at Hamilton.

During the interim between the location of the pole line and the organization of the first low tension construction gang on June 20th, 1910, standard specifications were prepared and adopted by the Commission.

Actual construction on the first low tension line was begun on July 13th, 1910, and by the following October other gangs had been organized and were employed on additional construction.



Low Tension Structure, Dundas Station.

Right-of-Way.

The low tension lines have been erected along the most direct routes and as a rule border the public highways, although in some cases, where it was found either impossible or impracticable to follow the course of the highway, the lines were erected across country on private property; these latter routes being employed in several cases to avoid long detours, since numerous angles in the line would require excessive guying and bracing of the poles and materially increased the cost of the construction.

Easements to provide for the location of stub poles, anchors and guys, and the erection of the line on private properties were secured by the Right-of-Ways Department after complete data, including a sketch showing the desired location of the poles or anchors and giving the name of the owner, lot number, concession number and township, had been forwarded to the head office from the field and

plans prepared for registration. The Right-of-Way Department also secured agreements to provide for the cutting and trimming of trees along the highways and on private properties, and had secured by October 31st, 1911, right-of-way for 17.2 miles, and tree trimming and cutting contracts for 153.17 miles of line.

Standard Construction.

Idaho Cedar Poles, with an average height of 40 ft., a top diameter of 7½ in., and a butt diameter of approximately 17 in. are employed throughout the distributing system except where special steel structures are employed for crossings.

Low Tension Pole Line.

The low tension lines as a rule are operated at a standard potential of 13,200 volts, although in a few instances other potentials are being employed. At the present time there are only two lines more than twenty miles in length, *i.e.*, Woodstock to Tillsonburg 21.42 miles, and Stratford to Seaforth 27.35 miles. All lines were constructed to standard specifications and inspected by the engineers of the Commission before being placed in operation.

A special line operating at 6,600 volts potential was constructed from Preston sub-stations to the Municipal Stations of Preston and Galt, and the station of the Galt, Preston and Hespeler Electric Railway.

Extent of System.

On October 31st, 1911, 153.17 miles of line had been erected and were in operation in the various sections of the transmission system.

The mileage of the various pole lines completed and under construction on this date are as follows:—

Total length of low tension lines	186.69	miles.
" " pole lines	176.19	"
" " single circuit lines	67.46	"
" " double circuit lines	119.23	"
" " low tension telephone line	171.29	"
Total number of poles	8256	
Length of line completed	153.17	miles.
" " under construction	18.77	"

Description of Lines.

LOW TENSION LINE.

Voltage.	Total Mileage.	Total Mileage, Single Circuit.	Total Mileage, Double Circuit.	Remarks.
22,000	4.50	4.50	.....	Line from Midland to Penetanguishene.
13,200	169.38	56.46	112.92	
6,600	10.31	4.52	5.79	
2,200	2.50	1.98	.52	Dundas to Dundas and Hamilton Asylum Lines.

GAUGE, LENGTH AND WEIGHT OF CABLE AND WIRE.

Gauge, Brown & Sharp.	Wire. Miles.	Weight, Pounds.	Mileage, Single Circuit.	Mileage, Double Circuit.
400,000 C.M. Aluminum Cable	2.29	4,406	.53	.....
250,000 C.M. Copper Cable, D.B.,W.P.	1.95	8,855	.45	.....
No. 4/0 Aluminum Cable	36.47	37,491	.....	5.79
No. 3/0 " "	22.86	5,852	7.26	.....
No. 0 " "	305.51	156,726	9.41	43.79
No. 2 " "	586.52	189,445	47.94	69.13
No. 2 Copper, Bare	5.89	6,267	1.87	.....
No. 4 " D.B.,W.P.	3.27	2,517	.....	.52
Totals	964.76	411,559 =205.8 tons	67.46	119.23

LOW TENSION TELEPHONE LINE.

Gauge, Length and Weight of Copper Clad Steel Wire.

Gauge, Brown & Sharp.	Wire, Miles.	Weight, Pounds.	Mileage, Single Circuit.
No. 10	277.32	42,707	132.06
No. 8	82.83	20,293	39.23
Totals	360.15	63,000 =31.5 tons.	171.29

Total wire miles, weight of all aluminum cable, copper cable, copper wire, copper clad steel wire and ground cable used on lines completed or under construction to Oct. 31st, 1911:—

Cable or Wire.	Wire, Miles.	Weight, Pounds.	Remarks.
Aluminum Cable	953.65	393,920	
Copper Cable	7.84	15,122	
Copper Wire	3.27	2,517	
Copper Clad Steel Wire	360.15	63,000	
¼-in. Stranded Steel Cable	184.03	134,084	Ground Wire.
Totals	1,508.94	608,643 =	304.4 tons.

The poles used for the low tension lines within the corporate limits of London, Berlin, St. Thomas and Galt were supplied and erected by the various municipalities. The Commission erected only the power cables. On all other sections the Commission supplied all material and built the lines.

List of Low Tension Lines, Showing Section Number, Number of Poles, Number of Circuits, Size of Cable and Mileage of Line.

Sec.	From	To	No. of Poles.	Size of Cable.	No. of Circuits.	Mileage.
1	Dundas Sub. H.E.P.C.....	Junction Pole No. 134	134	1/0	2	2.84
2	Junction Pole No. 134	Beach Pump House	323	1/0	2	6.34
3	Junction Pole No. 134	Asylum Pump House.....	67	2	1	1.13
4	Berlin Sub. H.E.P.C.....	Junction Pole No. 10	10	1/0	2	.17
5	Junction Pole No. 10	Waterloo	79	1/0	2	1.64
6	Junction Pole No. 10	Berlin Corp. Station.....	35	1/0	2	.38
7	Berlin Sub. H.E.P.C.....	New Hamburg.....	556	2	2	12.27
8	Woodstock Sub. H.E.P.C..	Ingersoll.....	453	1/0	2	9.87
9	Woodstock Sub. H.E.P.C..	Junction Pole No. 508	508	1/0	2	11.12
10	Junction Pole No. 508	Tillsonburg	467	1/0	2	10.30
11	Junction Pole No. 508	Norwich	207	2	1	4.59
12	St. Thomas Sub. H.E.P.C.	St. Thomas Corp. Station.	50	1/0	2	1.13
13	Stratford Sub. H.E.P.C...	Stratford Corp. Station ..	78	2 copper	1	1.73
14	Preston Sub. H.E.P.C.....	Junction Pole No. 99	99	4/0-2	3	2.04
15	Junction Pole No. 99	Hespeler.....	99	2	1	2.08
16	Junction Pole No. 99	Galt.....	175	4/0	2	3.75
17	Preston Sub. H.E.P.C.....	Preston Corp.. Station...	11	2 copper	1	.14
18	London Sub. H.E.P.C.	Junction No. 1, Pole No. 38	38	3/0-2	2	.79
19	Junction No. 1, Pole No. 38	Asylum.....	70	2	1	1.54
20	Junction No. 1, Pole No. 38	Junction No. 2, Pole No. 93	55	3/0	1	1.20
21	London Sub. H.E.P.C.	London Sub. No. 1.....	178	3/0	1	3.56
22	Junction No. 2, Pole No. 93	London Sub. No. 1.....	96	3/0-0	2	1.71
23	Junction No. 2, Pole No. 93	London Sub. No. 2.....	20	0	1	.31
24	London Sub. No. 1	Springbank	156	0	1	3.55
25	Dundas Sub. H.E.P.C.....	Dundas Town	58	400,000 C.M.	1	.98
					1	.53
26	Pt. Credit Sub. H.E.P.C...	Pt. Credit Lake Shore Rd.	129	2	2	2.74
26a	Pt. Credit Lake Shore Rd.	Pt. Credit Brickworks...	14	2	2	.24
27	Pt. Credit Sub. H.E.P.C...	Brampton.....	510	2	2	11.29
28	Stratford Sub. H.E.P.C...	Junction Pole No. 648.....	648	2	2	14.39
29	Junction Pole No. 648	Seaforth.....	581	2	2	12.86
30	Junction Pole No. 648	Mitchell.....	63	2	2	1.27
31	Guelph Sub. H.E.P.C.	Ont. Agricultural College.	77	1/0	1	1.58
32	Guelph Sub. Station	Property	8	1/0	1	.09
33	Junction Pole No. 69	Guelph Prison.....	84	1/0	1	2.00
34	Pt. Credit Sub. H.E.P.C...	Weston	551	2	2	14.07
35	Preston Sub. H.E.P.C.....	G. P. & H. Rly.....	6	1/0	1	.20
36	Pt. Credit Junct. P. No. 84	Mimico (New Toronto)...	251	2	1	5.35
37	Midland S. Ry. & P. Co...	Penetang.....	223	2	1	4.50
38	Dundas Sub. H.E.P.C.....	Dom. Sewer Pipe Co.....	350	2	1	7.35
39	Hamilton Asylum P. H. ..	Hamilton Asylum	30	4 copper	2	.63
40	Junction Pole No. 260	Waterdown	72	2	1	1.50
40a	Dom. Sewer Pipe Co.....	Junction Pole No. 260	—	2	1	1.92
41	St. Thomas Sub. H.E.P.C.	Port Stanley.....	575	2	1	12.27
42	Tap. Sec. No. 8 Line at Beachville	Standard White Lime Co.	2	2	1	1.00
	London W. W.....	Sanitarium	10	2	1	1.25

Progress of Work.

An engineer was sent to Hamilton early in January, 1910, to locate a suitable route for the low tension line from Dundas Transformer Station to the Beach Pump Station at Hamilton, and on April 4th, 1910, surveys were started for this pole line.

The first low tension construction gang was organized on June 20th, 1910. Construction work commenced July 13th, 1910, on the line from the Dundas Transformer Station to the Beach Pump Station, and has been carried on steadily since that date. Other construction gangs were organized and placed in the field in October, 1910.

The construction work completed by the Commission up to October 31st, 1911, may be briefly summarized as follows:—

Poles delivered and erected	8,256
Total length of line completed	153.17 miles.
Total length of line under construction	23.07 miles.

The following tabulation gives the dates to October 31st, 1911, on which construction work was started and completed on the different sections of the low tension transmission lines:—

Sec. No.	From	To	Construction Started.	Line Completed.
1 & 2	Dundas Sub. H.E.P.C.	Beach Pump Station, Hamilton	July 13, 1910	Jan. 2, 1911
3	Junction Pole No. 134	Asylum Pump House	Dec. 3, 1910	Feb. 8, 1911
4 & 6	Berlin Sub. H.E.P.C.	Berlin Municipal Station	Aug. 25, 1910	Sept. 11, 1910
5	" "	Waterloo	Sept. 11, 1910	Nov. 25, 1910
7	" "	New Hamburg	Sept. 11, 1910	Jan. 2, 1911
8	Woodstock Sub. H.E.P.C.	Ingersoll	Nov. 14, 1910	Mar. 28, 1911
9 & 10	" "	Tillsonburg	Jan. 2, 1911	Apr. 29, 1911
11	Junction Pole No. 508	Norwich	Feb. 13, 1911	Mar. 30, 1911
12	St. Thomas Sub. H.E.P.C.	St. Thomas Municipal Station	Dec. 14, 1910	Dec. 30, 1910
13	Stratford Sub. H.E.P.C.	Stratford Municipal Station	Built by Corporation of Stratford.	
14 & 16	Preston Sub. H.E.P.C.	Galt	Oct. 8, 1910	Jan. 19, 1911
15	" "	Hespeler	Oct. 8, 1910	Dec. 30, 1911
17	" "	Preston Municipal Station	Built by Corporation of Preston	
18–23	London Sub. H.E.P.C.	All London Lines included	Oct. 26, 1910	Jan. 21, 1911
24	" No. 1	Springbank	Jan. 1, 1911	Jan. 7, 1911
25	Dundas Sub. H.E.P.C.	Dundas Town	Dec. 1, 1910	Jan. 1, 1911
26 & 26A	Port Credit H.E.P.C.	Port Credit Brick Works	Feb. 24, 1911	July 23, 1911
27	" "	Brampton	Feb. 15, 1911	May 6, 1911
28, 29 & 30	Stratford Sub. H.E.P.C.	Seaforth and Mitchell	Mar. 24, 1911	Sept. 13, 1911
31 & 32	Guelph Sub. H.E.P.C.	O. A. College	July 21, 1911	Sept. 29, 1911
34	Port Credit Sub. H.E.P.C.	Weston	Apr. 19, 1911	July 24, 1911
35	Preston Sub. H.E.P.C.	G. P. & H. Railway	Mar. 13, 1911	Mar 21, 1911
37	Midland, S. Rly. and P. Co.	Penetanguishene	June 7, 1911	July 18, 1911
38	Dundas Sub. H.E.P.C.	Dominion Sewer Pipe Works	July 21, 1911	Oct. 11, 1911
39	Asylum Pump House	Hamilton Asylum	Sept. 26, 1911	Oct. 27, 1911
40	Junction Pole No. 260	Waterdown	Sept. 6, 1911	Sept. 28, 1911
40A	Dominion Sewer Pipe Works	Junction Pole 3260	Sept. 30, 1911	Oct. 7, 1911

Construction work was commenced on Section No. 36, Port Credit Junction Pole No. 84 to Mimico, on October 2nd, 1911, and on Section No. 41 St. Thomas to Port Stanley, on October 16th, 1911. Since these dates, the work has been continued steadily on these sections.

Construction had not been started on Section No. 42, Beachville Line, and Section No. 43 Dundas Sub. HEPC. to Bertram and Sons on October 31st, 1911.

Work Under Construction.

The following sections of line were under construction on October 31st:—

Section No. 36, Port Credit (Junction Pole No. 84, Sec. No. 26) to Mimico, which prior to date, 246 of the required 251 poles had been erected. The cable stringing had not been started, but the line was well under construction. Total mileage of line, 5.35 miles.

Section No. 41, St. Thomas to Port Stanley, which prior to date, 83 of the required 575 poles had been erected. The guying, bracing, and wire stringing had not been started, but the line was well under construction. Total mileage of line, 12.31 miles.

Low Tension Crossing.

Construction work on the line from Dundas Sub. Station to J. Bertram and Sons, and also on the line from Beachville to the Standard White Lime Kiln Co. had not been started, although the material for both lines had been delivered and was on the ground. Total mileage of lines under construction, 23.07 miles.

Costs.

The costs of construction varied considerably for the different sections of the low tension transmission lines, since the varying factors, such as the distance of transmission, which necessitated different sized conductor: the length of poles required, owing to local conditions, and the number of circuits carried.

The total expenditure for the construction of 186.69 miles of low tension lines to October 31st, 1911, was $349,898.00.

TELEPHONE AND PROTECTIVE RELAY LINES.

Telephone System.

Communication between the various substations and municipalities served with Commission energy is secured through an extensive telephone system. A telephone exchange with an ultimate capacity of from fifteen to twenty-five lines, according to the relative importance of the station within the transmission system, is installed in each transformer station, and a main telephone line paralleling the high tension line is employed to connect the various Exchanges. The arrangement of lines in the telephone system is similar to that adopted for the high tension system; Niagara, Toronto, Dundas and London being termed Terminal Stations. The respective telephone lines terminate on individual drops in the Exchanges. Port Credit, Guelph, Preston, Berlin, Stratford, St. Marys, Woodstock and St. Thomas are through stations, bridged across the main telephone line and operated as party line stations. The through stations are located in a loop circuit, and may be sectionalized by means of special switches placed in the incoming and outgoing lines. In case of trouble, this arrangement permits the damaged section to be cut out of the loop circuit, while it in no way interferes with the use of any of the other Exchanges.

The telephone equipments were purchased in the open market, and are of standard American design and construction. The operation of a telephone system paralleling a high tension transmission line is generally rendered extremely difficult by the switching, accidental grounds or other disturbances occurring on the latter. Due to the high potential used on our system, the induced voltage on the telephone line is enough to cause the flow of considerable current through the equipments, and should the slightest leakage occur on one of the lines it would be sufficient to make communication practically impossible. Normally, that is, with perfectly balanced lines, the existing potential between lines, instruments and ground does not affect the operation of the system. However, it usually places the insulation of the equipment under an undue strain, much higher than the standard equipment is supposed to withstand, and is therefore not a desirable condition. This electrical strain may be obviated by placing bleeding coils across the line and ground, and thereby reduce the voltage of the line to practically ground potential. But then, again, this method does not take care of abnormal voltage surges induced upon the line from various causes, such as, for instance, the daily charging of the high tension electrolytic lightning arresters, high tension switching, accidental grounds on the line, or lightning disturbances.

Each of these causes has practically the same effect upon the telephone line, namely, the sudden charging of the line with a high potential with reference to ground which, under severe conditions, may rise to a value disastrous to the equipment unless the protective devices can divert and effectively reduce this voltage.

Telephone protective devices adapted to provide lines subjected to these conditions are not, at the present time, procurable in the open market. Various types of protective devices were employed on the system with little or no success. Standard fuses were also tried, but they were of insufficient capacity, and blew too frequently to be of real service, carbon arrestors of various makes and type became grounded too easily, and bleeding coils of so-called standard design would break down and become grounded, always drowning the entire system. Heat coils and similar devices were discarded soon after operation was commenced, since they

were susceptible to the slightest disturbance. The carbon gap arresters were also replaced by a vacuum type of protective device of German make, which considerably improved conditions, but these were again supplemented by an American made type with a larger current carrying capacity.

After a careful investigation of the conditions and requirements of the system, together with a number of trials and experiments, had been made, it was decided to employ a standardized protective equipment for the entire telephone system, and have it constructed by our own experts in accordance with the specifications and plans prepared by our engineers.

Telephone Equipment.

The complete protective equipment employed for each main line entering a station is mounted on a special switchboard slate panel 7 in. by 30 in. in size. A similar protective equipment, but less elaborate, is mounted on an adjacent panel. Each panel is designed to handle four local line connections. On a third panel is mounted the apparatus used for operating, consisting of ringing transformers, relays, and distributing terminals for the source of current supply. All panels are mounted side by side on a steel frame as near the line entrances as feasible, in order to reduce to a minimum the length of wire required from these entrances to the protective panels.

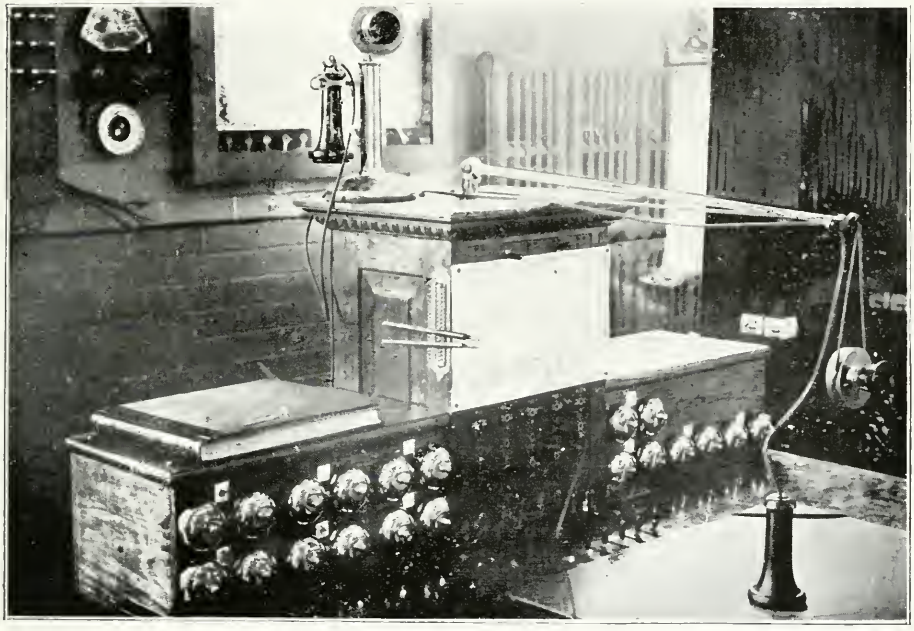
In addition to the protective equipment, the panels carry the switches previously mentioned for the sectionalizing of the line. The protective equipment proper consists of the following apparatus in the respective order in which they are in the line:—

2—600 volt, 12 amp., indicating cartridge fuses in series with line.
1—Vacuum type lightning arrester for metallic circuit across lines and ground.
1—Auxiliary copper tube gap arrester, across lines and ground.
1—Specially wound iron, open core choke coil, in series with line.
1—Bleeding inductance accurately balanced and well insulated, across lines and ground.
1—Bleeding condenser accurately balanced, across lines and ground.

When accidental non-arcing grounds occur on the high tension lines, or the phases become unbalanced, the induced charges on the line correspond to the line frequency of 25 cycles. These charges find an outlet to ground through the bleeding inductances, which are wound to offer very high inductive resistance to the taking currents, and low non-inductive resistance to the disturbing charges. The vacuum arresters are employed to clear the line of surges of high frequency, the result of a difference in potential between the line and the ground of approximately 300 volts or over. The great advantage of the vacuum type of arrester is the gradual breaking down of its dielectric resistance rather than an abrupt discharge, as results with the use of an ordinary air gap arrester. The electrodes of the vacuum arresters are separated about 1-16 in., and as a result there is little chance of carbon particles bridging this gap and grounding the line.

Choke coils with high inductive resistance are employed as a protection against high frequency surges passing the vacuum arrester. They are placed in series with the line and a condenser shunted across the line and ground. The condensers as well as the inductances are accurately balanced, and are grounded by means of a neutral tap.

The auxiliary gap arresters have been adopted as an additional protection against the excessively severe disturbances, which the vacuum arresters, in their present stage of development, are unable to withstand. The function of the auxiliary gap arresters is to provide an overflow to ground in case the induced voltages exceed the maximum values which the vacuum arresters and the shunted condensers can safely handle. These auxiliary gaps are so constructed that they will also prevent an increase in potential between lines over and above that which may be safely sustained by the telephone equipment. Should such a discharge cause a momentary short-circuit across the gap, the fuses will eventually blow, thereby disconnecting the equipment entirely from the line. Both fuses and auxiliary gap arresters may be quickly removed and examined without the use of tools, likewise all other apparatus on the panels without disturbing or removing any of the wires.



Telephone Exchange.

Up to the present time the equipment just described has given adequate and reliable protection to the telephone equipment, and practically uninterrupted service for the intricate system. The cost of maintenance for the entire telephone system corresponds, of course, to that of any other large installation, and since a large amount of business is transacted over the lines, the service is exceptionally hard. However, outside of ordinary delays occasioned by the wear and tear on the apparatus, there have been no further interruptions caused by the external electric disturbances.

Protective Relay System.

In addition to the ordinary relays provided at each of the stations for opening the circuit breakers when overloads or any similar troubles occur, special sets of line relays have been installed which are designed to automatically cut out faulty sections of the high tension lines without interfering with the energy supply

to any of the other stations. The use of a relay system of this type is made possible through the loop scheme of distribution which is employed throughout the Transmission System between Niagara Falls, Toronto and London. The western portion of the system embraces a loop starting at Dundas and extending to London, via Woodstock and back to Dundas through the municipalities of St. Mary's, Stratford, Berlin, Preston and Guelph. Thus, Guelph may be supplied around the loop from London instead of from Dundas directly, in case the Dundas-Guelph section of line is out of service. Line switches have been provided at each of the above mentioned stations which make it possible to cut out of the circuit any section of line between two stations by opening the proper switches at those stations.

The line protective relays are employed to open the two switches at either end of any section out of service, as just described. The operation is accomplished as follows:—

The small copper conductors are carried on the telephone poles parallel to the high tension lines and provide an electric circuit between adjacent stations and connected to the low tension windings of series transformers which are carried back on the lower ends of the high tension oil circuit breaker bushings.

The low tension windings at each end of any section are connected in series with each other and force a current through the relay wires proportional in value to the current flowing in the high tension line conductors, so long as the high tension line is in normal operating condition. Should a fault occur on the high tension line the current which flows in at one end of the high tension line section will be different from that which emerges from the other. This difference will result in different current values in the low tension windings of the series transformer at either end of the line, and naturally disturb the current flow in the relay wires. The series transformers are provided with a third set of windings named the tertiaries, which are connected to the trip coils of the respective oil circuit breakers. The different current values flowing in the secondary windings of the series transformers tend to induce a potential in the tertiary windings sufficient to cause current to flow through the trip coils, and thereby open the circuit breakers. This operation is accomplished at both ends of the line section simultaneously, and the section instantaneously cut out and rendered harmless, as well as preventing interruptions to other portions of the line.

Construction of Lines.

Organization.

The contractor's field organizations were similar in 1910 to those of 1909, and consisted of three pole erecting gangs. A fourth gang was organized in February, 1910, and employed to string wire on Section "B" between the Toronto and Dundas Stations.

One of the erecting gangs was re-organized on July 9th, 1910, when the greater part of the pole erection had been completed, moved from Niagara Falls to St. Thomas, and employed to string wire on Section "K" between the St. Thomas and London High Tension Stations.

The pole erecting gangs also did all the necessary guying and bracing of poles preparatory to stringing the wire. This organization was maintained until the completion of the contract; the various construction gangs being disbanded as they completed their sections of the line.

Every construction gang was accompanied by an Inspector who supervised the details of construction in the interest of the Commission.

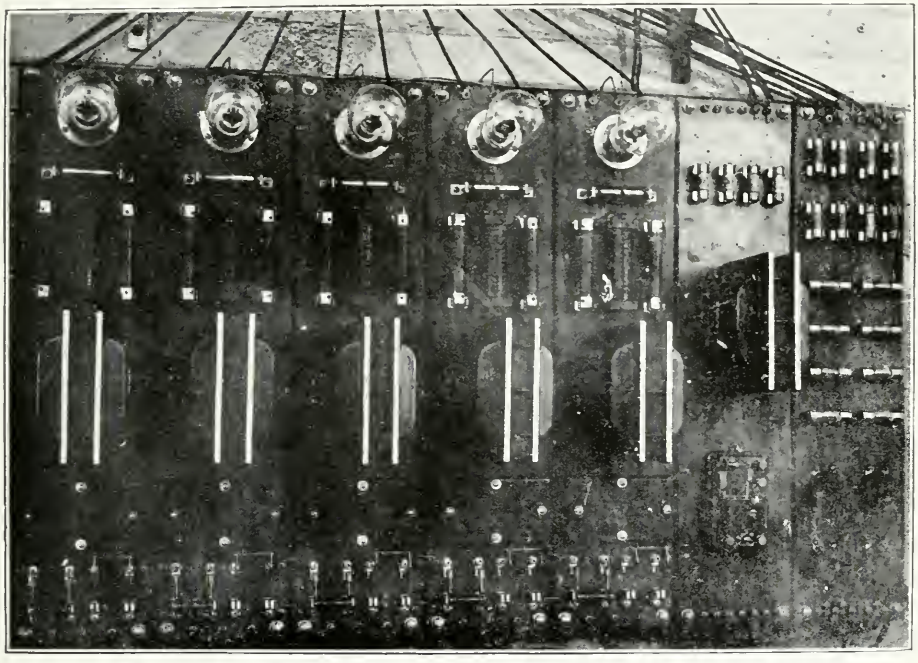
The field work on the Telephone and Relay Protective System was under the supervision of the Field Engineer in charge of construction, under whom were the Commission's Telephone Line Inspectors.

Daily progress reports were sent into the Toronto office by the inspectors, and also weekly reports, which were prepared under the supervision of and signed by the Field Engineer.

From these reports, tables, diagrams, etc., were compiled by the office staff, and a close check kept on the progress of the work in all parts of the system.

Progress of Construction.

During the winter of 1909, the number of Contractor's working force was reduced to two gangs, which were engaged in erecting the long poles and filling the



Telephone Protective Equipment.

gaps left in pole line in Section "A," Dundas to Niagara Falls, and Section "B," Dundas to Toronto.

These gangs also guyed and braced the poles preparatory to the stringing of the wire.

On February 26th, 1910, a third gang was organized, and wire stringing was started on Section 'B," Dundas to Toronto.

On May 14th, 1910, the contractor organized another wire stringing gang, started them at Dundas on Section "F," Dundas to Guelph. Work was carried on continuously without interruption throughout the summer, and the gangs disbanded as the various sections and classes of work were completed. The last gang employed was a wire stringing gang, which completed the erection of the last section of telephone line on November 19th, 1910.

The first copper for the telephone and relay lines was erected February 26th, 1910, and the last on November 19th, 1910, approximately 1,547.64 miles of copper wire having been erected on these lines.

A summary of work performed by the contractor from October 31st, 1909, to the date of completion, November 19th, 1910, is as follows:—

Section "A"—Niagara Falls to Dundas.

Mileage of pole line erected	10.15	
" " guying and bracing completed	54.15	
" " telephone wire erected	227.45	double circuit
" " relay wire erected	227.45	double circuit

Section "B"—Dundas to Toronto.

Mileage of pole line erected	6.87	
" " guying and bracing completed	35.87	
" " telephone wire erected	75.32	single circuit
" " relay wire erected	150.65	double circuit

Section "C"—Dundas to Paris.

Mileage of pole line erected	3.00	
" " guying and bracing completed	22.90	
" " telephone wire erected	49.09	single circuit
" " relay wire erected	48.09	single circuit

Section "D"—Paris to Woodstock.

Mileage of pole line erected	19.43	
" " guying and bracing completed	21.53	
" " telephone wire erected	45.21	single circuit
" " relay wire erected	45.21	single circuit

Section "E"—Woodstock to London.

Mileage of pole line erected	19.03	
" " guying and bracing completed	26.03	
" " telephone wire erected	54.66	single circuit
" " relay wire erected	54.66	single circuit

Section "F"—Dundas to Guelph.

Mileage of pole line erected	0.12	
" " guying and bracing completed	26.12	
" " telephone wire erected	54.85	single circuit
" " relay wire erected	54.85	single circuit

SECTION "G"—GUELPH TO BERLIN.

Mileage of pole line erected	10.25	
" " guying and bracing completed	21.87	
" " telephone wire erected	45.92	single circuit
" " relay wire erected	45.92	

SECTION "H"—BERLIN TO STRATFORD.

Mileage of pole line erected	20.37	
" " guying and bracing completed	28.75	
" " telephone wire erected	60.37	single circuit
" " relay wire erected	60.37	single circuit

SECTION "I"—STRATFORD TO ST. MARY'S.

Mileage of pole line erected	5.50	
" " guying and bracing completed	15.28	
" " telephone wire erected	32.09	single circuit
" " relay wire erected	32.09	single circuit

SECTION "J"—ST. MARY'S TO LONDON.

Mileage of pole line erected	14.59	
" " guying and bracing completed	27.81	
" " telephone wire erected	58.40	single circuit
" " relay wire erected	58.40	single circuit

SECTION "K"—LONDON TO ST. THOMAS.

Mileage of pole line erected	16.09	
" " guying and bracing completed	16.09	
" " telephone wire erected	33.78	single circuit
" " relay wire erected	33.78	single circuit

TOTAL OF ALL SECTIONS

Total mileage of pole line erected	125.41
" " " guying and bracing completed	296 41
" " " telephone wire erected	736.15
" " " relay wire erected	811.48

General Data.

A separate wooden pole line is employed to carry the High Tension Telephone and Relay Circuits. and has been erected generally parallel to and on the opposite side of the highways from the High Tension Lines.

Two circuits for both the telephone and relay systems were erected from the Niagara Falls Station to Dundas. This assures positive operation in case either of the two fail to operate. Between Dundas and Toronto two relay circuits and one telephone circuit were at first erected. Another telephone circuit is. however, at present being added to this section.

On all other sections of the High Tension System single circuit telephone and relay lines were erected.

The mileages of different sections of telephone and relay lines are as follows:

Sec. "A": Niagara Falls—Dundas	54.156	miles
Sec. "B": Dundas—Toronto	35.87	"
Sec. "C": Dundas—Paris	22.90	"
Sec. "D": Paris—Woodstock	21.53	"
Sec. "E": Woodstock—London	26.03	"
Sec. "F": Dundas—Guelph	26.12	"
Sec. "G": Guelph—Berlin	21.873	"
Sec. "H": Berlin—Stratford	28.15	"
Sec. "I": Stratford—St. Mary's	15.285	"
Sec. "J": St. Mary's—London	27.81	"
Sec. "K": London—St. Thomas	16.09	"
Total	296.414	miles

Constructions Completed on October 31st, 1909.

The construction work on the telephone and relay system completed by the contractors up to October 31st, 1909, may be briefly summarized as follows:—

Sec. "A": Niagara Falls—Dundas	44.00	miles
Sec. "B": Dundas—Toronto	29.00	"
Sec. "C": Dundas—Paris	19.90	"
Sec. "D": Paris—Woodstock	2.10	"
Sec. "E": Woodstock—London	7.00	"
Sec. "F": Dundas—Guelph	26.00	"
Sec. "G": Guelph—Berlin	11.62	"
Sec. "H": Berlin—Stratford	8.38	"
Sec. "I": Stratford—St. Mary's	9.78	"
Sec. "J": St. Mary's—London	13.22	"
Sec. "K": London—St. Thomas	0.00	"
Total	171.00	miles

Date of Final Completion and Total Mileage.

Construction work for the telephone and relay systems was completed on Nov. 19th, 1910; the last section of line being erected into Toronto on this date:—

Total mileage of pole lines (including all sections of system)	296.414	miles
Total number of poles erected	12.368	"
Total mileage of double-circuit telephone line	242.258	"
Total mileage of double-circuit relay lines	90.026	"
Total mileage of single-circuit relay line	206.388	"
Total wire miles of copper erected on telephone line	736.158	"
Total wire miles of copper erected on relay line	811.488	"

Following is summary of complete line data covering all sections:—

Section "A"—Niagara Falls to Dundas.

Distance, 54.156 miles.
Number of poles erected, 2,204.
Mileage of telephone wire erected, 227.455 (wire miles).
Mileage of relay line erected, 227.455 (wire miles).

Section "B"—Dundas to Toronto.

Distance, 35.87.
Number of poles erected, 1,519.
Mileage of telephone wire erected, 75.320 (wire miles).
Milage of relay wire erected, 150.650 (wire miles).

Section "C"—Dundas to Paris.

Distance, 22.90.
Number of poles erected, 957.
Mileage of telephone wire erected 48.090 (wire miles).
Mileage of relay wire erected, 48.090 (wire miles).

Section "D"—Paris to Woodstock.

Distance, 21.53.
Number of poles erected, 888.
Mileage of telephone wire erected, 45.210 (wire miles).
Mileage of relay wire erected, 45.210 (wire miles).

Section "E"—Woodstock to London.

Distance, 26.03.
Number of poles erected, 1,074.
Mileage of telephone wire erected, 54.660 (wire miles).
Mlieage of relay wire erected, 54.660 (wire miles).

Section "F"—Dundas to Guelph.

Distance, 26.12.
Number of poles erected, 1,093.
Mileage of telephone wire erected, 54.850 (wire miles).
Mileage of relay wire erected, 54.850 (wire miles).

Section "G"—Guelph to Berlin.

Distance, 21.873.
Number of poles erected, 935.
Mileage of telephone wire erected, 45.925 (wire miles).
Mileage of relay wire erected, 45.925 (wire miles).

Section "H"—Berlin to Stratford.

Distance, 28.75.
Number of poles erected, 1,164.
Mileage of telephone wire erected, 60.370 (wire miles).
Mileage of relay wire erected, 60.370 (wire miles).

Section "I"—Stratford to St. Mary's.
Distance, 15.285.
Number of poles erected, 634.
Mileage of telephone wire erected, 32.098 (wire miles).
Mileage of relay wire erected, 32.098 (wire miles).

Section "J"—St. Mary's to London.
Distance, 27.81.
Number of poles erected, 1,204.
Mileage of telephone wire erected, 58.40 (wire miles)
Mileage of relay wire erected, 58.40 (wire miles).

Section "K"—London to St. Thomas.
Distance, 16.09.
Number of poles erected, 696.
Mileage of telephone wire erected, 33.780 (wire miles).
Mileage of relay wire erected, 33.780 (wire miles).

CHAPTER III.

CONSTRUCTION OF STATIONS.

NIAGARA SYSTEM.

The construction of the station buildings for the transmission system as originally planned was well under way during the period of the last report. Work on these buildings was continued throughout the winter of 1909-1910, the majority of them were enclosed by spring, and all completed during 1910.

Very little difficulty was experienced in securing materials and labor for this work, excepting that the steel market became stringent during the progress of the work. Labor prices averaged 17½c. per hour. In addition to the construction of the stations proper, considerable grading and fencing has been done on the station sites; telephone and low tension lines have been conveniently arranged, and the condition of a number of roadways improved.

Standard Auxiliary Equipment.

Heating Systems.

Since there were a large number of heating systems to be installed, it was considered advantageous for the Commission to purchase boilers, radiators and valves direct from the manufacturers and award the contracts for the supply of piping and fittings as well as the installation of the systems to local heating contractors. The boilers were purchased prior to October 31st, 1909. Specifications for the radiators were sent to all manufacturers in Canada and the contracts awarded as follows:—

Niagara Falls, Dundas and Toronto stations, the Gurney Foundry Company; for the remaining stations, Taylor-Forbes Company.

Valve specifications were supplied all manufacturers or dealers in Canada as well as manufacturing companies in the United States. The specifications covered the valves required for the oil and water as well as for the heating systems. A superior type of valve was required for the former, and it was therefore necessary to choose a valve that would be most suitable for the service intended. Several tenders were received which did not meet our requirements, but after careful consideration of the different tenders and examinations of the samples submitted the contract was awarded to the Canadian Fairbanks Company.

Specifications for the installation of the heating system were submitted to all parties desiring them after a circular postal had been sent to each steamfitter in the district covered by our system to ascertain if they desired to tender on the work

Contracts were awarded as follows: —

Niagara Falls Station, Purdy, Mansell & Co., Toronto.	$691 00
Dundas Station, Rodger, Gibson & Co., Hamilton....	495 00
Toronto Station, Keith & Fitzsimons, Toronto.	495 00
London Station, Noble & Rich, London.	525 00
Guelph Station, Stevenson & Malcolm, Guelph.	430 00
Berlin Station, J. Hainsworth, Berlin.	272 00
Preston Station, Bernhardt & Gies, Preston.	327 00
Stratford Station, McDonald & Henry, Stratford.	419 00
St. Mary's Station, McDonald & Henry, Stratford.....	444 00
Woodstock Station, Whitney Bros., Woodstock.....	443 00
St. Thomas Station, James Williams, St. Thomas.....	330 00

The installation of the heating, oil, water and compressed air systems was more or less complicated. Considerable attention was given the arrangement in the original lay-out, after which only a few changes were made and then principally in the first stations laid out. Return systems were installed where possible and all leads covered with standard insulation.

Steam is supplied the Woodstock station from a nearby steam power plant belonging to the municipality, and at all other stations from boilers located in the stations.

Lighting Systems.

Specifications were issued for the installation of conduits, cut-out boxes, wiring and connections necessary for a lighting system in each of the stations. Circular postals were first sent to all contractors and specifications forwarded all parties desiring them. Contracts were awarded as follows:

Niagara Falls Station, George J. Beattie, Toronto	$750 00
Dundas Station, Keith & Fitzsimons, Toronto	630 00
Toronto Station, George J. Beattie, Toronto	830 00
London Station, Commercial Elec. Co., London	598 00
Guelph Station, Stevenson & Malcolm, Guelph	275 00
Preston Station, Geo. J. Beattie, Toronto	340 00
Berlin Station, Elec. Construction Co., Berlin	347 00
Stratford Station, Geo. J. Beattie, Toronto	371 00
St. Mary's Station, Geo. J. Beattie, Toronto	373 00
Woodstock Station, Geo. J. Beattie, Toronto	349 00
St. Thomas Station, Geo. J. Beattie, Toronto	388 00

The lighting fixtures employed were designed by the Commission and tenders requested for their manufacture. The contract was awarded to the James Morrison Company, Toronto.

Sockets, shades and holders were purchased from the Canadian General Electric Company, since their tender was the most satisfactory and advantageous. The 32 c.p. incandescent lamps were purchased from the Canadian Tungsten Lamp Company, Hamilton, after comparing their tender with others received.

Efforts were made to secure local contractors as far as possible in this work, but experience shows that work of this kind may be more economically performed on several installations under one contract, chiefly because of the elimination of a number of repetitions in buying, etc., which correspondingly reduce the first cost to all concerned.

Extensions were made to the lighting system as originally planned by the installation of lamps outside the building, located adjacent to the arrester gaps for their inspection and operation at night.

Water Cooling Systems.

Water pumps were required in each station for circulating the water for cooling the transformers. Specifications for these pumps were sent to all manufacturers in Canada as well as several in the United States, and on receipt of their tenders, after careful consideration, the contract was awarded for all pumps, with the exception of one, to the Canadian Buffalo Forge Co., of Montreal. These pumps were motor-driven turbine units, installed in duplicate.

A different type of pump was required in the St. Mary's station, and this was purchased from the Gould Pump Co. for $326.00.

Oil Systems.

In order to facilitate the drying of the transformers, and also to ensure the exclusion of moisture, vacuum systems were installed in the various stations by which the air is exhausted from the transformers and oil drawn in from an intermediate tank described later. This necessitated the installation of a compressor. Small oil pumps and filters were also installed for purifying the oil.

Specifications relative to the installation of apparatus, piping and fittings were supplied all reputable contractors in the district, and after careful consideration of all tenders received, the contracts were awarded as follows:—

Niagara Falls Station, Purdy, Mansell, Toronto	$1196 00
Dundas Station, Purdy, Mansell, Toronto	578 00
Toronto Station, Keith & Fitzsimons, Toronto	1035 00
London Station, Noble & Rich, London	872 00
Guelph Station, Keith & Fitzsimons, Toronto	640 00
Preston Station, Bernhardt & Gies, Preston	736 84
Berlin Station, Keith & Fitzsimons, Toronto	575 00
Stratford Station, Keith & Fitzsimons, Toronto	600 00
St. Mary's Station, Noble & Rich, London	700 00
Woodstock Station, Purdy, Mansell, Toronto	563 00
St. Thomas Station, Noble & Rich, London	700 00

The filters were supplied by the Canadian Westinghouse Co., the intermediate tanks by Edward Ramage, of Toronto.

Transfer Trucks.

Trucks designed for a track with an 18 ft. gauge are employed for transferring the transformers to and from the erection rooms at the various stations. The transformers at Niagara weigh approximately 45 tons, and at the other stations from 30 to 35 tons. Trucks were manufactured by the John Inglis Company.

Switches and Busses.

Compartments of brick or concrete were required as a protection for the 13,200 volt wiring, busbars and switches. Contracts covering the necessary work were awarded as follows:—

Niagara Falls Station, John Hayman & Sons, London.	Included in Building Contract.
Dundas Station, General Contracting Co., Toronto	$526 00
Toronto Station, Built by the City of Toronto, we to pay our share of the cost.	
London Station, Hyatt Bros.	766 00
Guelph Station, General Contracting Co., Toronto	526 00
Preston Station, Edge & Gutteridge, Seaforth	850 00
Berlin Station, Edge & Gutteridge, Seaforth	875 00
Stratford Station, Edge & Gutteridge, Seaforth	420 00
St. Mary's Station, Edge & Gutteridge, Seaforth	420 00
Woodstock Station, General Contracting Co., Toronto	850 00
St. Thomas Station, Edge & Gutteridge, Seaforth	420 00

Some additions have been made to the original plans for these structures; for instance, for the installation of a feeder switch for the Ontario Agricultural college at Guelph Station, it was not thought advisable to install complete bus structures, for irrespective of the number of actual feeders in use, the particular type of switch employed would materially alter the design of the structure proper.

Protection for Operators.

In addition to grounding all parts of the station and the towers on the station site, as previously referred to, attention in detail has been given to the complete grounding of all parts which the operators handle in ordinary operation. Screens and guards have also been placed at various points where the men are apt to come in contact with the high voltage equipment, and notices are posted forbidding the entrance of the public except under the careful guidance of the operators. Various other notices of warning have been posted about the site and inside the building.

Switching Equipment.

Requests for additional feeder switches at the Guelph, Stratford, St. Mary's, London and St. Thomas stations were received from several municipalities which increased the original contract with the Canadian General Electric Company, from $372,545.00 as mentioned in Second Annual Report to $425,549.63.

Station construction work on the original system was practically completed prior to October 31st, 1911. There are a few exceptions, i.e. small charges which will be made by the operating staff from time to time.

Buildings and Equipment.

Low Tension Conduit.

Power is received at the Niagara Falls Station from the Ontario Power Company's Distributing Station at a potential of 12,000 volts over three conductor, 300,000 cm., paper insulated, lead sheathed cables 2,200 ft. in length placed in tile conducts. Each cable has a carrying capacity of 4,500 kw., and since the individual transformer banks have a rating of 9,000 kw., two incoming power cables feeding these banks are connected in parallel. The ends of each pair of cables are protected by automatic oil circuit breakers connected to auxiliary busses, which in turn are connected by similar breakers to the main busses, or directly to banks of transformers as desired.

Niagara Falls Step-up Transformer Station.

At present, there are nine 3,000 kv-a. single phase transformers installed, although the building has been made sufficiently large to contain an additional bank of three.

From the high tension side of the transformers the current is carried through disconnecting switches, and high tension oil switches to the high tension busbars, here it passes again through disconnecting switches and oil circuit breakers to the line outlets of the two 110,000 outgoing lines, and thence through choke coils and passing electrolytic arresters, provided with horn gaps placed outside, on to the line.

The 12,000 volt switches, busbars and accessories are located in the basement, and incoming feeder cables are laid in ducts beneath the basement floor, the necessary number terminating at the terminal compartment opposite each feeder switch. The heating boilers, oil tanks, storage battery, pumps and air compressor are situated in other parts of the basement. The cables feeding the switches terminate in terminal rooms with standard end bells, above which the feeders are tied together in pairs. The leads from the transformer oil switches pass up through the

floor to the transformers, where the potential is stepped-up to 63,500 volts single phase. Each feeder is equipped with three oil circuit breakers, the first connecting the power source to an auxiliary bus, the second, the auxiliary bus to the main bus, and the third, the auxiliary bus to a bank of transformers. By this arrangement a feeder with a capacity equal to that of a transformer bank may be connected directly to a transformer bank or to the main bus. Through the medium of the auxiliary bus a transformer bank may also be connected to the main bus. This arrangement, while not complicated, offers sufficient flexibility to the circuit, since there are always two oil circuit breakers in series. The feeder switches are equipped with inverse time limit relays. Only the bus switches are non-automatic. Disconnecting switches are also supplied on each side of the oil switches, which are electrically controlled from a switchboard located in the control room, colored lights being employed to indicate the position of the switches.

Step-Up Transformer Station, Niagara Falls, Ont.

A service oil switch for controlling the transformers employed for the lighting, mechanical and other station equipment is connected to the main 12,000 volt bus.

All 12,000 volt connections, busbars and switches are enclosed in concrete cells.

The transformers and high tension switches are located on the main floor. Transformer banks are separated from each other by brick walls 25 feet high, and from the high tension switches by a brick wall 15 ft. in height. A track runway is provided to facilitate the removal of the transformers to the erection room for inspection or repairs. The piping subway is beneath the transformer compartments, and the oil, water and air pipes pass through the floor immediately in the rear of the transformers to the piping mains. The transformers are connected in delta on the low tension, in star on the high tension sides, and have grounded neutrals through a water resistance. The nine 3,000 kv-a. transformers are shell

type, oil insulated, water cooled, and designed for operation at a potential of 12,000 volts low tension, and 110,000 volts high tension. They are equipped with the Westinghouse condenser type of bushing.

The transformers and high tension lines are connected to the busses by automatic three-pole oil circuit breakers, operated from the control gallery in a manner similar to the 12,000 volt oil switches. In general the oil switches are isolated by means of disconnecting switches with blades normally vertical, mounted on post insulators, supported on the walls. All 110,000 volt connections and busses consist of bare one-inch seamless copper tubing installed near the roof and supported on porcelain petticoat insulators, of the built-up post type, with an overall height of 39 inches, in turn secured to special steel structures. These busses extend the entire length of the high tension switch room, and have a minimum clearance of 6 ft. between phases and 3 ft. 6 in. between a conductor and ground. The five 110,000 volt three-pole circuit breakers are electrically operated, and equipped with Westinghouse condenser type bushings. Due to the design of these switches no concrete barriers or brick work are required, and the switches proper will automatically open by gravity should accidents occur to their mechanisms.

The line outlets consist of corrugated porcelain tubes 40 in. long, supported in a horizontal position by four porcelain posts mounted in the plane of the wall in a treated wooden frame five feet square, and having the intervening space filled with plate glass.

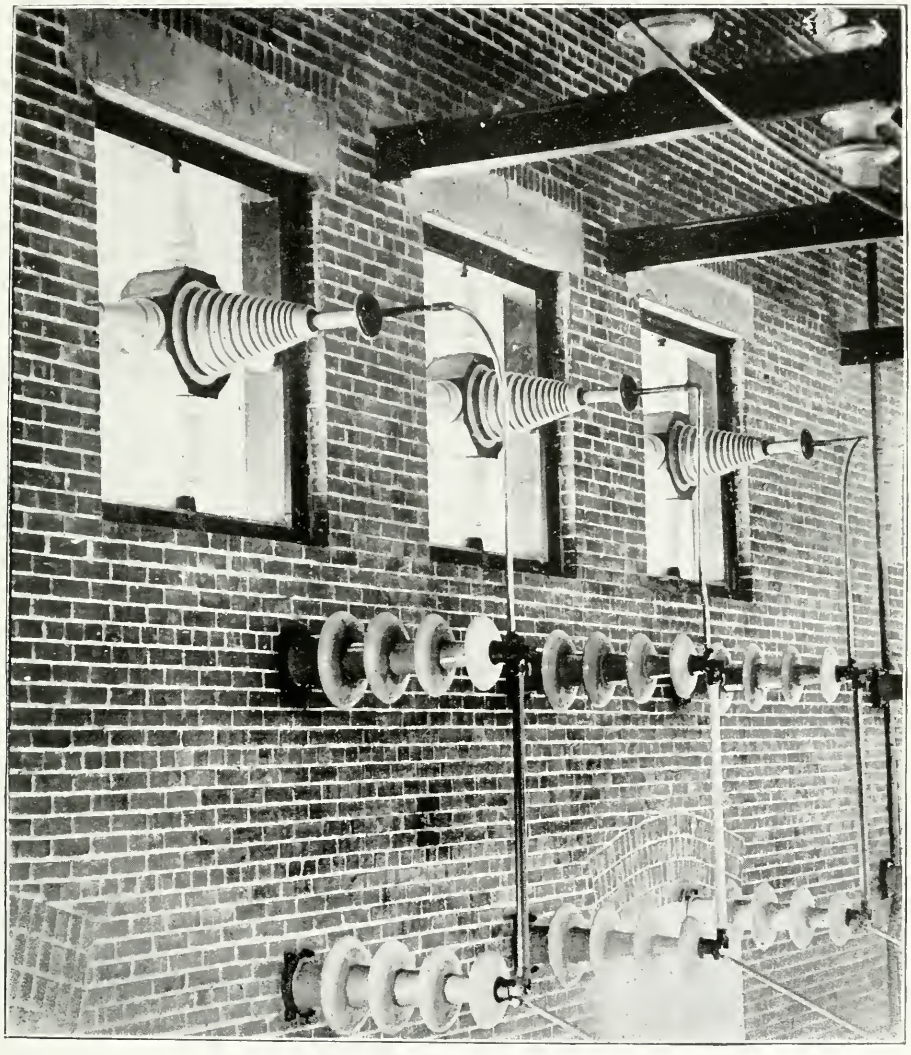
The hoods protecting the outlet bushings from the weather are 8 feet wide and extend three feet below the level of the bushing. On leaving the porcelain the leads drop vertically to a post insulator beneath the hood from the top of which the cable is carried directly to the insulator on the arrester structure. Beneath the wall outlet and this insulator is placed a choke coil constructed of aluminum wire in the shape of a helix with porcelain separators between the adjacent turns.

Lightning protection is secured by two sets of electrolytic lightning arresters, one for each outgoing line, equipped with horn gaps and placed on special steel structures outside the building. The aluminum plates set in boiler iron tanks filled with oil.

Two switchboards are installed in the control room. The main board consists of three 28-inch slate panels, each panel controlling one incoming feeder, the two connected 12,000 volt switches and one transformer bank. Two of the panels, in addition, control the outgoing high tension lines. Mimic bus connections, and the indicating lamps on the board assist the operator. The recording meters are placed on panels in the rear of the main board. The second switchboard is used for station service only, and controls the lighting, motor generator, for battery charging, crane, and pump circuits. Incandescent lamps are used for lighting. Every third lamp is wired in such a manner that by means of a no voltage release switch on the service switchboard these lamps may be quickly thrown over to the battery circuit in case alternating current energy is off.

The water employed for cooling the transformers is obtained from the City of Niagara Falls, or should the City supply fail, from the Ontario Power Company. The water after passing through the transformer coils is carried to a sprinkling cooling tank, which is an open concrete basin, 6 ft. in depth, in two sections, each 30 by 60 ft. with the top just above the ground level. The water is delivered to the basin through sprinklers designed to reduce the temperature of the water, and located some distance above the surface. Duplicate motor driven pumps are installed for operating this system. The duplicate oil tanks are also installed in the

basement, the capacity of each is slightly greater than the oil capacity of one transformer. The transformers are provided at their tops with oil blow-offs piped to a main, running into the "bad" oil tank, which is provided with an oil sealed blow-off to a sewer and a valve at the bottom for draining purposes. Oil filters and dryers are installed between the tanks, and the oil, after being filtered, is pumped back into the "good" oil tank. An oil pump is also provided for pumping pure

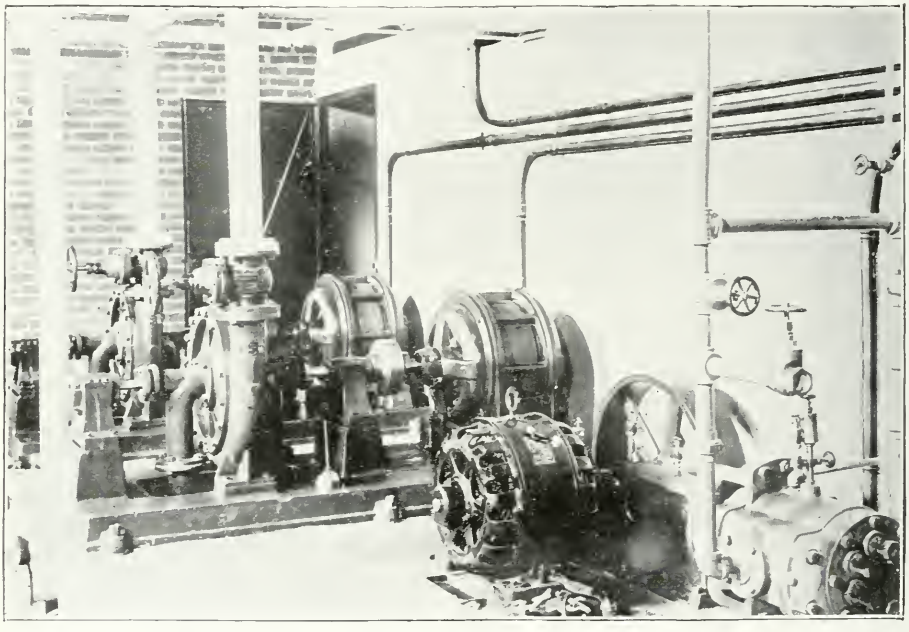


High Tension Outlets, Niagara Falls Station.

treated oil to an "intermediate" oil tank placed on the main floor at an elevation that permits the oil to be drawn into any of the transformers by exhausting the air from the cases by a specially installed motor driven air compressor and vacuum pump. This equipment may be operated as a vacuum pump for drawing oil into the case, or as a compressor for pumping in air to assist gravity in emptying it. The high tension oil switch tanks are connected by pipes to a switch oil tank in the basement, and this in turn is connected to the oil filter.

All stations in the system are equipped with similar oil and air circulating systems. The water system is varied in the different stations to suit local conditions, but in such case duplicate pumps are provided unless the station is connected to the local mains. The erection room is located near the end of the building, and contains a 45 ton travelling crane, with electric hoist, hand bridge and trolley travels. The control room is situated near the erection room in an enclosed gallery overlooking high tension switch and erection rooms. From this gallery the operator has an unobstructed view of the erection and high tension switch rooms. Eventually, the erection and control rooms will be located in the centre of the building, 344 ft. long by 50 ft. wide.

The high tension switch room extends along one side of the building, contains all the high tension transformer lines, disconnecting switches and high tension busbars.



Motor Driven Compressor and Pumps, Niagara Falls Station.

Dundas Interswitching Station.

The Dundas Station is the main interswitching station of the Niagara system, and from here the outgoing transmission lines radiate to the various sub-stations.

The station equipment consists of four 750 kv-a. oil insulated, water-cooled 110,000 to 13,200 volts, Westinghouse step-down transformers, employed to supply the City of Hamilton and vicinity; seven 110,000 volt Westinghouse electrically operated circuit-breakers equipped with condenser type bushings; six sets of outdoor type, 110,000 volt, electrolytic lighting arresters and two sets of 13,200 volt, electrolytic lighting arresters.

Seven 110,000 volt, 3 pole automatic solenoid operated oil switches, one for each incoming and outgoing line and one for each bank of three 750 kv-a. transformers are also installed. Two sets of 110,000 volt busses are supported on horizontal I beams near the roof, in a manner similar to those at the Niagara Falls

Station. Disconnecting switches are provided on the line side of the oil switches, while on the station side two sets are installed and so arranged that any of the lines may be connected to either set of busses.

The same method of installing and removing transformers is employed as at Niagara. In fact, the same arrangement is used in all stations in the system. The transformers are connected star delta with low tension winding potential of 13,200 volts. A spare transformer is provided to replace the transformers of the connected bank, in case any of them become disabled.

The 13,200 volt switches and busbars are enclosed in concrete cells. The present structures accommodate the transformer switch, two line switches, and the service transformer switch. They are all automatic, electrically controlled oil switches, each provided with relays best suited for the requirements of the service for which they are employed. Service transformers are provided to supply light

Interswitching Station, Dundas, Ont.

and power to the station. Three oil insulated, self cooled, 75 kv-a. transformers, stepping down from 13,200 to 2,200 volts serve the Town of Dundas.

The apparatus in the station is operated from an enclosed control room situated at one end of the high tension switch room, in which are located the main control and service boards, similar to those at Niagara. The control switchboard carries all the control switches operating at 110 volt d.c. for the remote control of the high and low tension power switches, and also the meters. The service board is a regular switchboard employed to distribute the power to the different lighting and power circuits in the station.

The mechanical and cooling equipment in general is the same as in the step-up station.

Condenser bushings are used in both the Niagara Falls and the Dundas Stations on all high tension switches and transformers. The Canadian Westing-

house Company furnished and installed the entire equipment, with a few exceptions, of these two stations. Arrangements are being made at the present time for the installation of an additional bank of transformers and the necessary switches.

Toronto Station.

This station was built in three sections, each running the length of the building, and consisting of the high tension switching, the transformer, and the low tension switching sections.

The incoming lines are protected by electrolytic arresters, placed within the building, and provided with horn gaps mounted on steel structures outside. The hoods for the outlets are built with a floor, upon which the entrance bushings consisting of stacked porcelain rings with a pronounced petticoat are mounted. The different sections of the bushings are clamped together with a brass bolt extending through the centres, the intervening spaces between the brass and porcelain being filled with concentric fibre rings and insulating compound. Since the arresters are placed inside and the horn gaps outside the building, six bushings are required for each line. Spiral choke coils are employed and are inserted in the power lead on the inner side of the entrances.

The 110,000 volt oil switch equipment consists of two line and two transformer switches, each in the busbar circuits. The general arrangement of 110,000 volt busses and connections are similar to those at Niagara Falls and Dundas, with the exception that the insulators used are of a corrugated rather than a petticoated type. General Electric oil switches and transformers are employed and provided with bushings built of annular sections of compound clamped together, the interior space being filled with concentric cylinders of treated fibre compound.

The transformer equipment consists of two banks of 1,250 kv-a. transformers stepping down the transmission voltage to 13,200 volts. The low tension leads branch and run through the oil switches to two sets of busses, each of which is divided into two parts. The cell work is built with pressed brick walls and concrete shelves. Ultimately, two ring busses will be installed, each being in four sections. There are eight feeders, each provided with automatic oil switches for connecting to either set of busses in use at the present time. The oil switches and busses are located in two rows on a gallery, while the potential and series transformers are placed in compartments on the main floor immediately beneath the switches. The busses are protected by aluminum cell surge protector sets. The outgoing feeders leave the building by underground ducts and connect with the five municipal substations in different parts of the city located and connected in a loop.

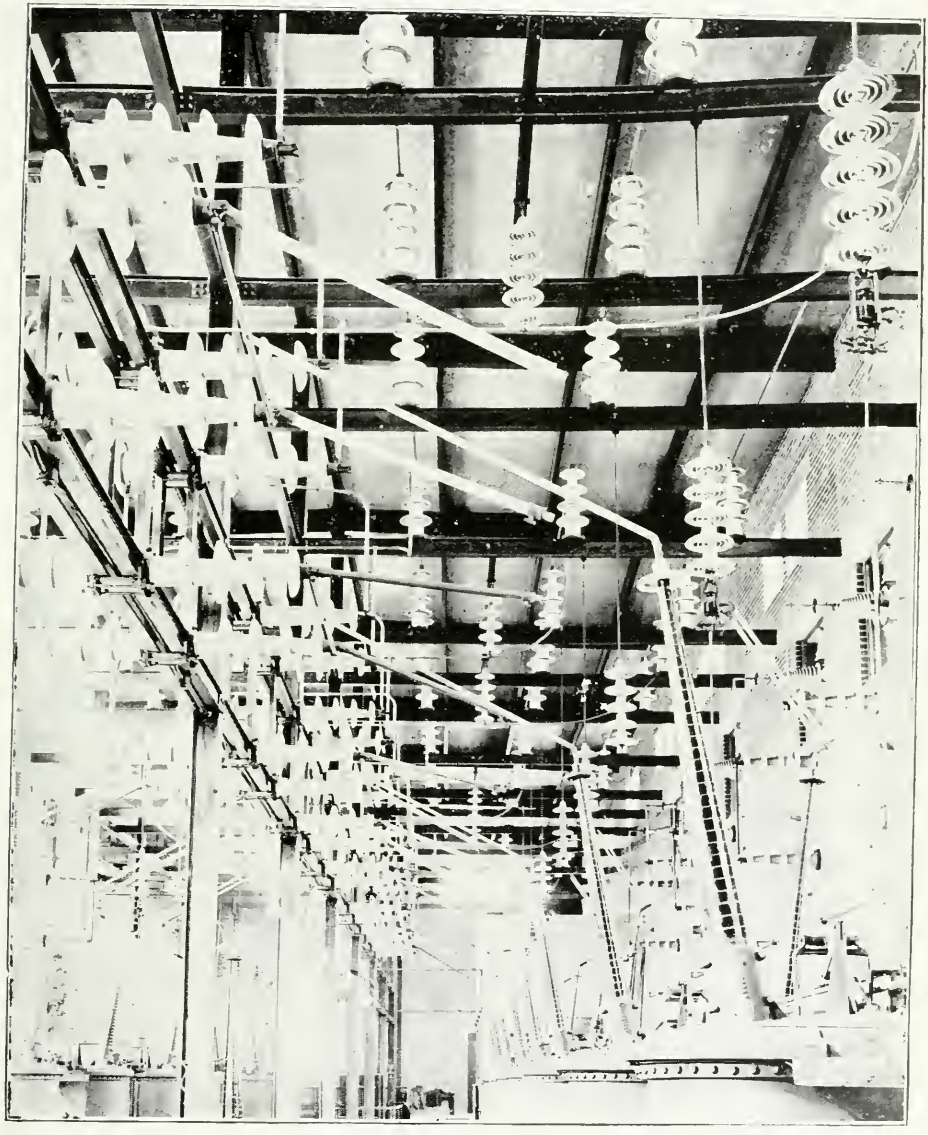
The City of Toronto is at present installing transformers stepping down from 13,200 to 2,200 volts in the basement of the station, which will be used for City service, mainly to supply energy for the factory load of the city, a large part of which is located within one half mile of the station.

The control switchboard is located on a small gallery. All 110,000 and 13,200 volt switches are operated from the board. Curve drawing meters are mounted on the feeder panel for recording both the load and power factors.

A concrete pump-house has been constructed a few hundred yards distant on the shore of Lake Ontario with an intake pipe extending 500 ft. into the lake to provide cold water for cooling purposes. Duplicate motor driven pumps and a service equipment similar to that at the Niagara Falls Station have been installed.

Guelph, Preston, Berlin, St. Marys and Woodstock Stations.

The 110,000 volt equipment in each of these stations is similar, since they are loop stations. The lines enter the stations through automatic oil switches to the busses, and pass through similar circuit breakers. The incoming and outgoing lines in each station are provided with electrolytic arresters. The transformers



High Tension Interswitching Room, Dundas Station.

are supplied with current at high potential, from the busses through automatic oil switches. Disconnecting switches are installed on either side of the oil switches, except on the transformer side of the transformer oil switch.

Each station is equipped with a bank of three single-phase 750 kv-a. oil insulated, water-cooled transformers and also a spare unit available for use in case of

an emergency. The low tension winding potential is 13,200 in every case with the exception of Preston, where the greatest transmission distance is only six miles, and 6,600 volts potential was adopted for distributing purposes. All transformers are supplied with taps for both 6,600 and 13,200 volts.

The low tension equipment is similar, and the general arrangement the same in all stations, the only difference being in the number of outgoing feeders. All feeders are equipped with automatic, hand-operated oil switches, disconnecting switches, switchboard panels containing indication and recording meters, relays and handles for operating the switches, and protected by electrolytic lightning arresters.

Provisions were made for six outgoing feeders at each of the present stations. Preston, Berlin and Woodstock are now utilizing their full complement of feeders.

The service equipments both electrical and mechanical are in general the same as those employed in the stations previously described, except that no storage batteries or motor generator sets are required because the switches are hand-operated. Duplicate water pumps are provided to circulate the water employed to cool the transformers except in instances where city water service has been secured.

The spare transformers in any of these as well as in London and St. Thomas stations may be quickly connected in a bank in place of a disabled one.

London Station.

This station is a "Loop" station with a branch line running off the main bus. The high tension equipment is practically the same as that in the other "loop" stations just mentioned, with the addition of an oil switch connecting the busses and line supplying St. Thomas. There are four 110,000 volt and six 13,200 volt electrically operated oil switches, and three 1,250 kv-a. transformers installed in the station. A spare transformer is also provided for use in case of emergency. Four 13,200 volt feeders supply energy to the City of London's distributing station and to the Provincial Asylum.

St. Thomas Station.

This station will ultimately be a "loop" station, although it is a terminal station at the present time, and consequently has no 110,000 volt outgoing line equipment. The building, however, is constructed similar to the other standard "loop" stations.

PORT CREDIT SUB-STATION AND MISCELLANEOUS.

As soon as the contract with the Port Credit Brick Company negotiated during the Spring of 1911 was closed, tenders were called for, contracts placed for electrical equipment, and the construction of the station building started.

Specifications for the electrical equipment were forwarded to the principal electrical construction companies in Canada, Europe and the United States on May 6th, 1910.

Contracts for this equipment were awarded as follows:—

September 13th, 1910, to the Canadian Westinghouse Company for Switching and Protective Apparatus—$29,792.00.

The following is a copy of an Agreement for the supply and erection of Switching and Protective Apparatus.

THIS AGREEMENT made this 13th day of September, A. D. 1910.

Between:

CANADIAN WESTINGHOUSE COMPANY, LIMITED, OF HAMILTON, hereinafter called the "Contractors."

Party of the First Part.

— and —

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission"

Party of the Second Part.

WITNESSETH, that the parties covenant, promise, and agree each with the other as follows:—

1. In this contract the word "Work" or "Works" shall unless the context requires a different meaning, mean the whole of the Work or Works, and material, matters and things required to be done, furnished and performed by the Contractor under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the Work or Works.

2. Wherever in this agreement the Contractor or Commission are mentioned or referred to, such mention or reference shall extend to, and be binding upon the heirs, executors, administrators, successors or assigns of the aid parties respectively:

3. The following Documents:

(*a*) Commission's Specifications for Electrical Equipment (Switching and Protective) Port Credit Station, with attached Instructions to Bidders and Form of Tender marked "A" (36 pages and 2 prints).

(*b*) General conditions of contract (11 pages) marked "B".

(*c*) Contractors' proposal marked "C" which shall take precedence over Commission's Specifications (5 pages).

(*d*) Prints and Contractors' Drawings when initialed as approved by Engineer, marked "D".

(*e*) Contractors' Bond marked "E".

Shall be read into and form part of this contract. Should any of the above documents contain contradictory clauses, the preference shall be given to the documents in the order given above, unless otherwise stated.

4. Contractors covenant and agree:

(*a*) To supply all necessary material, labor, tools, machinery and other plant, required for the construction, delivery, installation and test of the switching and protective electrical equipment for the Commission's Transformer Station near Port Credit, Ontario, as set forth in detail in specifications and exhibits hereto.

(*b*) To use the best material, and construct, complete and install, and test the said work, in a thorough and workmanlike manner and in strict conformity with said specifications and drawings except as amended by clauses herein, to the satisfaction of the Commission's Chief Engineer, for the sum of twenty-nine thousand, seven hundred and ninety-two dollars ($29,792.00).

(c) To fully complete, test, and deliver to the Commission, the switching and protective apparatus, ready for supplying existing demand six months from receipt of contract executed by the Commission and of the Engineer's order to proceed with all work, provided the Commission shall have the station under cover and ready for commencing and continuing installation of apparatus not later than December 1st, 1910.

5. It is understood that the Contractors will perform a double potential test on all apparatus covered by contract, the Commission to allow the Contractor the use of one of the 110,000 volt lines from Dundas to Port Credit for this purpose. The time of tests to be determined by the Engineer.

6. The contractor to deliver to the Commission a bond satisfactory to the Commission to secure the sum of seven thousand, five hundred dollars ($7,500.00) for the proper performance of this contract. It shall be perovided in said Bond that without notice to the surety, the said documents in this contract or any part or parts thereof may from time to time be varied, and that the said sureties shall not be released, or the liability under the Bond affected by any such variation.

7. The Commission agrees:

(*a*) The Engineers shall pursuant to Paragraph 7 of General Conditions, give his order to the Contractors to proceed with the work immediately.

(*b*) To pay the Contractors for said equipment and Works upon the terms and conditions set forth in said General Conditions, and Specifications, and upon the terms particularly mentioned in paragraph No. 4 (b).

8. It is further agreed:

(*a*) That the 110,000 volt lightning arresters shall be placed outside the building as recommended by the Contractor. Necessary supports for same to be provided by the Contractor at his expense, with the exception of concrete foundations, which are to be supplied by the Commission.

(*b*) The Contractor shall immediately prepare drawings showing the arrangement of all apparatus covered by contract, and will submit same to the Engineer for approval, on or before October 15, 1910, and Contractor shall supply Engineer with all data relative to tests and construction as required. Upon the execution of the contract by the Contractor, the Engineer will furnish the Contractor with a set of blue prints from which the Transformer Station building will be constructed. No material not shown on these drawings will be furnished by the Commission.

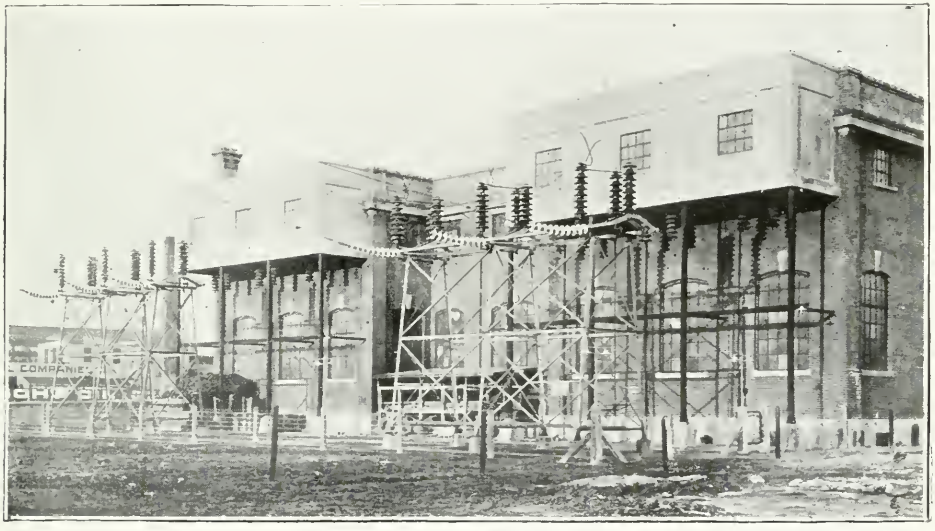
(*c*) That should the Engineer not accept any apparatus supplied by Contractor under agreement dated 26th May, 1909, then this rejection shall likewise apply to similar apparatus supplied under this agreement.

(*d*) If the Contractor does not in the opinion of the said Engineer, carry on the works with sufficient speed to complete the work on said date, the Commission may, at its option, be released from this agreement, and the Contractor shall, upon notice

in writing, immediately discontinue the works, and if required by the said Engineer, the Contractor shall immediately remove the whole or any part of the said equipment, to be specified by the Engineer, that has been delivered to the Transformer Station and the Commission may, at the option, proceed with the said works. The Commission shall not be liable for any loss, costs or damages arising before or after the release of the Commission from this agreement.

(*e*) All rights and remedies of the Commission and of the Engineer, noting on their behalf, may be exercised and continued concurrently or in the alternative.

(*f*) If within twelve months from date of the final certificate of the Engineer, it appears that unsound or defective material has been used by the Contractor, or the said works have not been executed in a substantial, workmanlike, and proper manner, the Contractor shall be liable to the Commission for all damages arising therefrom. No certificate, payment, or other act, matter or thing done or omitted under the contract, shall bar or prejudice the rights of the Commission in this respect.



Toronto Station.

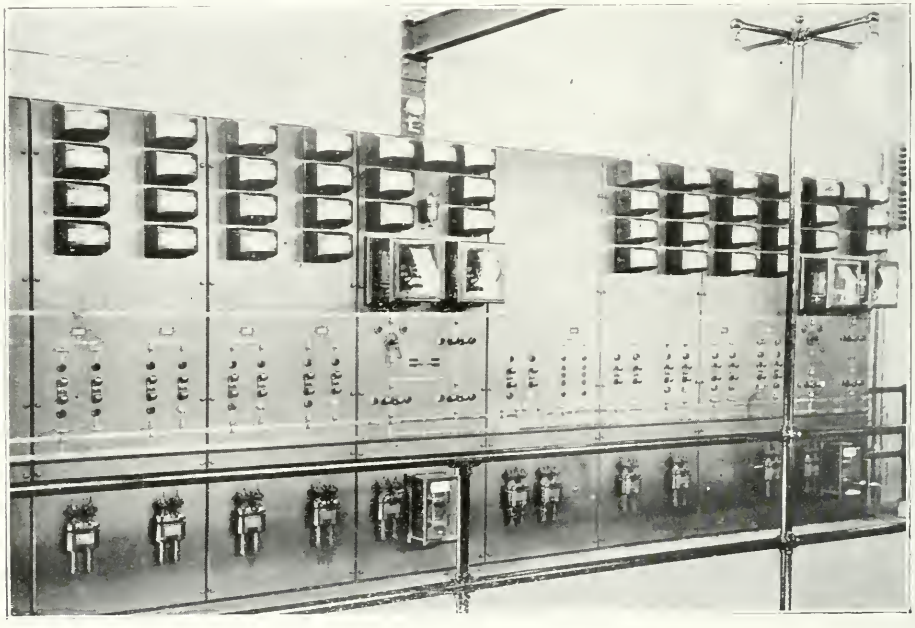
(*g*) Time shall be of the essence of this agreement.

(*h*) For all purposes of this contract, notices shall be served upon the Engineer, or his appointee in writing to the Commission, and upon the manager, or his appointee in writing for the Contractor.

(*i*) In case any municipal corporation which has or shall contract with the Commission for a supply of power, or any person, firm or corporation, which has or shall contract with any such municipal corporation, or with the Commission, for a supply of power, shall suffer damages by breach of this contract by the Contractor, and such municipal corporation, firm, person, or corporation, would, if the Contractor had made this contract directly with them, have had a right to recover such damages, or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings, or bring such action for, or on behalf of, such municipal corporation, person, firm, or corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporations, person, firm, or corporation,

including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, firm, person, or corporation, shall have agreed with the Commission to pay any costs that may be adjusted to be paid. The rights and remedies of any such municipal corporation, person, firm or corporation, shall not be hereby prejudiced.

9. The Contractor shall not be liable for damages for breach of contract caused by any delay of the Commission, and neither party shall be liable for damage for breach of contract caused by strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war, the delay of any other contractor, or any other cause reasonably beyond its control, and should any delay in the performance of this contract be caused to either party thereby, the Contractor shall not be bound to deliver, and the Commission shall not be bound to accept equipment during such time, and the time for performance of this contract by both parties shall be correspondingly extended.



High Tension Switchboard, Toronto Station.

Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption, in so far as they are able, and when such interruption shall have ceased the parties shall be prompt and diligent to perform the contract.

Provided that in construing this paragraph the rule of law known as "ejusdem generis" shall not be applied.

10. (*a*) If any difference shall arise during the progress or after the completion of the works, as to any matter or thing arising under or out of this contract, such difference may upon completion of the work be referred to two arbitrators not to be chosen by each of the parties hereto, and they shall choose a third arbitrator; but, if they connot agree, such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible, the arbitrators shall decide such difference in a summary manner. Either

party may appeal from any award of the arbitrators, as provided by the Arbitration Act Ont. Stat. 1909, Chap. 35, but no such appeal shall be carried beyond the decision of the Court of Appeal of Ontario.

(*b*) The arbitrators shall not consider any matter or difference which is expressly, or by implication, required, or permitted to be decided by the Engineer, or as to the grounds upon which, or mode in which, any opinion may have been formed or discretion exercised, by the Engineer. If any such matter or difference shall arise, and the Contractor claims that such matter or difference should be determined by arbitrators, the Contractor may apply in writing to the Commission to waive this paragraph 10 (*b*) : thereupon the Commission shall appoint a time and place to hear any representations of the Engineer or Contractor, and the Commission may, in its sole discretion, waive the provisions of the paragraph 10 (*b*), and permit the said matter or difference to be referred under paragraph 10 (*a*) to said arbitrators.

This agreement shall extend to, and be binding upon, and enure to the benefit of the successors, and assigns of the said parties.

IN WITNESS WHEREOF the Commission and the Contractors have respectively affixed their Corporate Seals and the hands of their proper officers.

DELIVERED
SIGNED, SEALED AND

in the presence of

CANADIAN WESTINGHOUSE COMPANY LIMITED OF HAMILTON.

(Sgd.) F. A. MERRICK, *Acting Vice-Pres.*

[SEAL.]

Atest.

(Sgd.) J. M. H. KERR, *Secretary.*

[SEAL.]

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

(Sgd.) A. BECK, *Chairman.*
(Sgd.) W. K. MCNAUGHT.
(Sgd.) W. W. POPE, *Secretary.*

September 20th, 1910. To the Allis Chalmers Bullock Co., for transformers $26,160.00.

During the spring of 1911, a fire occurred at the works of the last mentioned company, which destroyed the transformers in course of construction and so crippled the plant that they were unable to supply new transformers within a reasonable time. As the contracted delivery date was over due when the fire occurred this company was relieved of its contract, and negotiations opened with the Canadian Westinghouse Company and the Canadian General Electric Company with the result that a contract was entered into with the latter firm for the supply of four 1,250 kv-a transformers a ta price of $28,000.00. Shipment was required and stipulated in ten weeks. The equipment is now being installed and will be placed in operation during the month of November 1911.

The following is a copy of agreement for the supply and erection of transformers:—

THIS INDENTURE made this 19th day of July, A.D. 1911.

BETWEEN:

THE CANADIAN GENERAL ELECTRIC COMPANY, LIMITED, hereinafter called "Contractor."

of the First Part,

and

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission."

of the Second Part.

WITNESSETH that in consideration of the Covenants and agreements on the part of the Commission hereinafter contained, the Contractor covenants and agrees with the Commission as follows:—

1. In this contract the word "work" or "works" shall, unless the context require a different meaning, mean the whole of the work performed by the Contractor under this contract. The word "Engineer" shall mean the chief engineer for the time being appointed by the Commission and having control of the works.

2. Wherever in this Indenture the Contractor or Commission mentioned or referred to such mention or reference shall extend to and be binding upon the executors, administrators, successors and assigns of the said parties respectively.

The following Documents:

(*a*) The Contractor's proposal No. 12658 (*a*), three pages, hereto attached, Marked "A."

(*b*) The agreement between the Contractor and the Commission bearing date the 26th day of May, A.D. 1909, so far as the same is applicable to this Contract shall be read with and form part of this Contract.

The Contractor agrees:

(*a*) To furnish, test, deliver free of duty, freight or other charges, and instal (4) 1,250 kv-a. transformers in the Commission's Transformer Station near Port Credit in the Province of Ontario, in all respects as set forth in detail in the attached proposal and specifications.

(*b*) To use the best material, and construct, instal and equip the said work in a thorough workmanlike manner in strict conformity with said proposal, specifications and exhibits set out herein to the satisfaction of the Commission's Chief Engineer.

(*c*) To ship the said four transformers and material from Pittsfield, Massachusetts, on or before the 5th day of August, 1911, and to use every means in its power to hasten the delivery of the said transformers at Port Credit Transformer Station, and will forthwith after the arrival at said station commence installation and carry on the erection and completion of the work with all possible dispatch.

(*d*) That the terms and conditions of the agreement between the Contractor and the Commission, bearing date the 26th day of May, 1909, aforesaid, in so far as they apply hereto, and are not modified or superseded by Clauses herein, shall be read with and form part of this Contract as fully as if set out in full herein.

(*e*) That the Commission may perform tests after the erection and installation of said transformers similar to those performed and to be performed by the Contractor on the transformers supplied by the Contractor under the said agreement of 26th of May, 1909, said tests to be performed in the presence of the Contractor, their agent or representative.

(*f*) That said transformers when so installed and tested shall withstand successfully the test referred in the above Clause.

The Commission agrees:

(*g*) To pay the Contractor for the work and equipment herein specified when so installed, tested and approved, as aforesaid, the sum of Twenty-eight Thousand Dollars ($28,000.00).

IN WITNESS WHEREOF the Commission and the Contractor have respectively affixed their Corporate Seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED	CANADIAN GENERAL ELECTRIC COMPANY, LIMITED.
in the presence of	(Sgd.) A. E. GUEST, *Treasurer.*
(Sgd.) B. Haddy.	HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.
[SEAL.]	
	(Sgd.) A. BECK, *Chairman.*
[SEAL.]	(Sgd.) W. W. POPE, *Secretary.*

Tenders were called for the station on August 13th, 1910, and a contract was closed for the building proper with Stewart Bros. of Port Credit on September 2nd, for $14,875, and with the Jenks Dresser Company, of Sarnia, for the steel work on September 17th, for $4,650.00. In February 1911, it was found that the former would be unable to complete the contract satisfactorily. A mutual agreement was made and the work taken over by the Commission and completed.

The following is a copy of agreement for construction of substation building (not including steelwork).

THIS AGREEMENT made this 20th day of September, A.D. 1910.

BETWEEN:

WILLIAM STEWART, and ROBERT STEWART, trading as STEWART BROTHERS, OF PORT CREDIT, Province of Ontario, hereinafter called the "Contractors,"

parties of the First Part.

and

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission"

parties of the Second Part.

WITNESSETH, that in consideration of the covenants and agreements on the part of the Commission hereinafter contained, the Contractors hereby covenant and agree with the Commission as follows:—

1. In this contract the word "Work" or "Works" shall, unless the context requires a different meaning, mean the whole of the Work or Works, and material, matters and things required to be done, furnished and performed by the Contractor under this Contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the Work or Works.

2. Wherever in this agreement the Contractors or Commission are mentioned or referred to, such mention or reference shall extend to, and be binding upon the heirs, executors, administrators, successors, or assigns of the said parties respectively.

(*a*) Commission's Specifications for Construction of Transformer Station near Port Credit, Ontario, with attached instructions to Bidders and form of Tender, together with the following Drawings:

2-S-13003—Port Credit Station Site—Dated August 5th, 1910
4-S-13013—Plan of Foundations—Dated August 30th, 1910.
4-S-13015—Plan of Main floor and gallery—Dated August 29th, 1910.
4-S-13016—End Elevations—Dated August 30th, 1910.
4-S-13017—Front and Rear Elevations—Dated August 30th, 1910.
4-S-13018—Steel Diagrams—Dated August 30th, 1910.
4-S-13019—Wall Detail—Dated August 31st, 1910.
4-S-13020—Longitude section—Dated August 31st, 1910.
4-S-13021—Roof Plan—Dated August 31st, 1910.
4-S-13022—Cross Sections—Dated August 31st, 1910.

(*b*) General Specifications for Materials, etc. (26 pages) marked "B."
(*c*) General Conditions of Contract (11 pages) marked "C."
(*d*) Contractor's Bond.

Shall be read into and form part of this contract. Should any of the above documents contain contradictory clauses, the preference shall be given to the documents in the order given above, unless otherwise noted.

4. Contractors covenant and agree:

(*a*) To supply all necessary material, labor, tools, machinery and other plant, required for the construction, complete in every respect in strict accordance with

specifications and drawings, or as they may be amended from time to time, with the exception of steel work provided for in section 23 (Steel Work Alternative) the Commission's Transformer Station near Port Credit, Ontario.

(*b*) To use the best material, and complete said work in a thorough, substantial and workmanlike manner, in strict accordance with Drawings, Exhibits, and Specifications, upon dates and manner hereinafter provided, to the entire satisfaction of Commission's Chief Engineer, for the sum of Fourteen Thousand, Eight Hundred and Seventy-five Dollars ($14,875.00).

(*c*) To have bearing stones for the support of Roof Trusses permanently set, on or before November 1st, 1910.

(*d*) To have the Station Building permanently enclosed on or before December 7th, 1910, providing steel trusses and roof purlines are completed by Commission as stated in paragraph 5.

Preston Station.

(*e*) To have all floors with the exception of gallery floor completed on or before January 1st, 1911, provided steelwork done by Commission as herein agreed.

(*f*) All other work and building completed on or before the First day of February, 1911, provided steel work done by Commission as herein agreed.

(*g*) To do all necessary grubbing, including removal and disposal of all stumps in the area agreed upon between the Contractors and Commission, to the satisfaction of the Chief Engineer, for which the sum of One Hundred Dollars ($100.00) is included in amount stated in paragraph 4 (*b*) above. It being understood, that if any of the stumps have already been removed, a pro rata deduction to be made from the amount.

(*h*) Should the Commission require the hood columns encased in concrete, the same shall be done by the Contractor, as directed by the Chief Engineer, for which he shall be paid an additional sum of Thirty Dollars ($30.00).

(*i*) Time shall be deemed to be the material and essence of this contract.

(*j*) Not to assign this contract without the written consent of the Commission.

(*k*) To deliver to the Commission a Bond satisfactory to the Commission to secure the sum of Three Thousand Seven Hundred and Twenty Dollars ($3,720.00) for the proper performance of this contract. It shall be provided in said Bond that without notice to the surety the said documents and this contract, or any part thereof, may from time to time be varied, and that the said surety shall not be released, or the liability under the bond affected by any such variation. Premium $75.00 on said Bonds to be paid by Commission.

5. The Commission agrees:

(*a*) The Engineer shall, pursuant to paragraph 7 of General Conditions of Contract, give his order to the Contractor to proceed with the work or works herewith immediately.

(*b*) To pay the Contractors for said work the sum of Fourteen Thousand, Eight Hundred and Seventy-five Dollars, with the additional sum set out in paragraph 4 (*h*) if the additional construction is required, at times, and in manner set out in specifications.

(*c*) To have steel trusses and roof purlins erected and riveted in said building by November 15th, 1910, provided that bearing stones for support of trusses are set by the Contractor, as provided for in paragraph No. 4 (*c*).

(*d*) All other steel work to be completed by December 15th, 1910.

6. It is further agreed:

(*a*) That Commission's Chief Engineer shall be the sole judge as to whether the said contract has been completed and the work or works done in accordance with specifications and drawings attached hereto, and no payment certificate, or other Act, matter or thing, done or omitted under this contract shall bar or prejudice the right of the Commission in this respect.

(*b*) If the Contractors do not in the opinion of the Engineer carry on the works with sufficient speed to complete the work on said dates, the Commission may at its option be released from this agreement, and the Contractors shall upon notice in writing, immediately discontinue the works, and if required by said Engineer, the Contractor shall immediately remove the whole or any part of the said equipment, works or material, to be specified by the Engineer, that has been delivered to the Commission and the Commission may at its option proceed with the said works. The Commission shall not be liable for any loss, costs, or damages arising before or after the release of the Commission from this agreement.

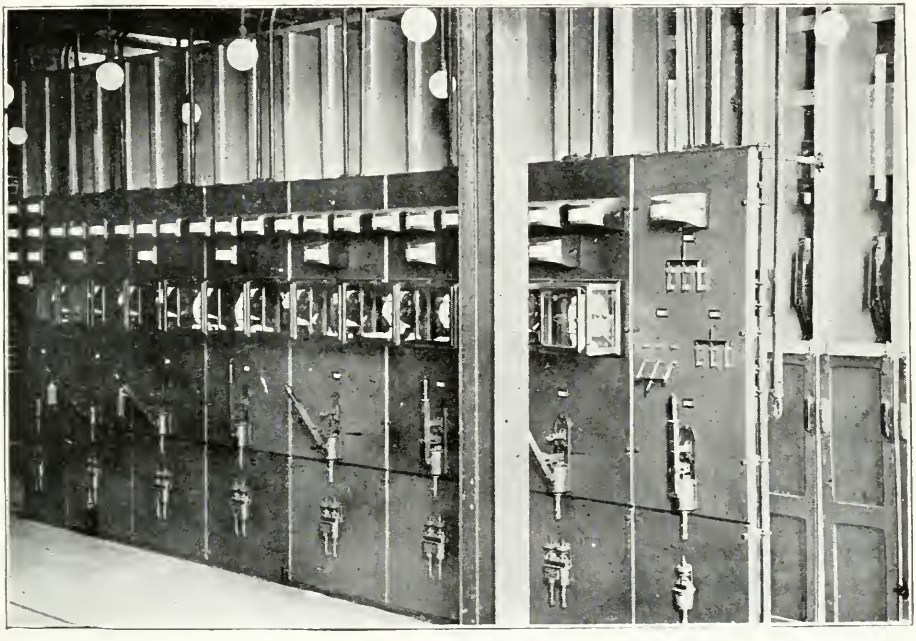
(*c*) All the rights and remedies of the Commission and of the Engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*d*) If within twelve months from the date of the final certificate of the Engineer it appears that unsound or defective material has been used by the Contractors, or the said works have not been executed in a substantial, proper, and workmanlike manner, the Contractors shall be liable to the Commission for all damages arising therefrom. No certificate, payment, or other act, matter or thing, done or omitted under this contract shall bar or prejudice the right of the Commission in this respect.

(*e*) In case the Corporation of the Town of Brampton, or any other person, firm or Corporation, which has or shall contract with the Commission for a supply of power, or any person, or company which has or shall contract for the supply or erection of steel work, or electrical or other appliances for said transformer station, shall suffer damages by breach of this contract by the Contractor, and such municipal corporation, firm, person, or corporation would, if the Contractor had made

this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for, or on behalf of, such municipal corporation, person, firm or corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation, shall have agreed with the Commission to pay any costs that may be adjudged to be paid. The rights and remedies of any such municipal corporation, person, firm, or corporation shall not be hereby prejudiced.

7. Neither party shall be liable for damages for breach of contract caused by



Switchboard, Preston Station.

strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war, or any other cause, reasonably beyond its control, and should any delay be in the performance of this contract be caused to either party thereby, the contractors shall not be bound to deliver or the Commission shall not be bound to deliver, or the Commission shall not be bound to accept the work or works or material during such time, and the time for performance of this contract by both parties shall be correspondingly extended.

Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption in so far as they are able, and when such interruption shall have ceased, the parties shall be prompt and diligent to perform the contract.

Provided, that in construing this paragraph the doctrine of "ejusdem generis" shall not be applied.

8. If any differences shall arise during the progress or after the completion of the work, as to any matter or thing arising under or out of this contract, such difference or differences shall when the work is completed, be referred to two arbitrators, one to be chosen by each of the parties hereto, and they shall choose the third arbitrator, but if they cannot agree, such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators, as provided by the Arbitration Act, Ontario Statutes 1909, Chapter 35, but no such appeal shall be carried beyond the decision of the Court of Appeal of Ontario.

(*b*) The arbitrators shall not consider any matter or difference which is expressly or by implication required or permitted to be decided by the Engineer, or as to the grounds upon which, or mode in which, any opinion may have been formed, or discretion exercised by the Engineer. If any such matter or difference shall arise, and the Contractors claim that such matter or difference should be determined by arbitrators, the Contractors may apply in writing to the Commission to waive this paragraph 8 (*b*) and permit the said matter or difference to be referred under paragraph 8 (*a*) to said arbitrators.

This agreement shall extend to, and be binding upon, and enure to the benefit of the heirs, executors, administrators, successors, and assigns of the said parties respectively.

IN WITNESS WHEREOF the Commission and the Contractors have respectively affixed their corporate seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED

in the presence of

WITNESS:

(Sgd.) K. M. EVANS.

(Seal.)

(Seal.)

STEWART BROS., PORT CREDIT.

(Sgd.) WILLIAM STEWART,

(Sgd.) ROBERT STEWART.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

(Sgd.) W. W. POPE, *Secretary.*

(Sgd.) A. BECK, *Chairman.*

The following is a copy of the agreement for the supply and erection of the steel work.

THIS AGREEMENT made this 17th day of September, A.D. 1910.

BETWEEN:

THE JENKS DRESSER COMPANY LIMITED, OF SARNIA, ONTARIO, hereinafter called the "Contractors,"

Parties of the First Part.

and

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission,"

Parties of the Second Part.

WITNESSETH, that in consideration of the covenants and agreements on the part of the Commission hereinafter contained, the Contractor hereby covenants and agrees with the Commission as follows:

1. In this contract the word "Work" or "Works" shall unless the contract conveys a different meaning, mean the whole of the Work or Works, and material, matters and things required to be done, furnished and performed by the Contractor under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the Work or Works.

2. Wherever in this agreement the Contractor or Commission are mentioned or referred to, such mention or reference shall extend to, and be binding upon the heirs, executors, administrators, successors, or assigns of the said parties respectively.

3. The following documents:

(*a*) Commission's specifications for Steel Work, Port Credit Transformer Station, with attached Instructions to Bidders, and Form of Tender, including the following drawings, P.S.C.-100910911 pages marked "A."

2-S-13003—Port Credit Station Site—Dated August 5th, 1910.
4-S-13013—Plan of Foundations—Dated August 30th, 1910.
4-S-13015—Plan of Main Floor and Gallery—Dated August 29th, 1910.
4-S-13016—End Elevations—Dated August 30th, 1910.
4-S-13017—Front and Rear Elevations—Dated August 30th, 1910.
4-S-13018—Steel Diagrams—Dated August 30th, 1910.
4-S-13019—Wall Detail—Dated August 31st, 1910.
4-S-13020—Longitudinal Section—Dated August 31st, 1910.
4-S-13021—Roof Plan—Dated August 31st, 1910.
4-S-13022—Cross Sections—Dated August 31st, 1910.

(*b*) General Specifications for Material and Workmanship, etc. (26 pages) marked "E."

(*c*) General Conditions of Contract (11 pages) marked "C."

(*d*) Contractors' Bond (pages marked "B") shall be read into and form part of this contract.

Should any of the above documents contain contradictory clauses, preference shall be given to the documents in the order given above.

4. Contractors agree:

(*a*) To supply all necessary material, labor and plant, required for fabrication, delivery, and erection of steel work for Commission's Transformer Station near Port Credit, Province of Ontario, according to specifications and drawings attached hereto.

(*b*) To use the best material, and complete the said steel work in a thorough, substantial, and workmanlike manner, in strict accordance with specifications and drawings, and to the satisfaction of the Chief Engineer, upon the dates and times hereinafter mentioned for the sum of Four Thousand Six Hundred and Fifty Dollars ($4,650.00).

(*c*) To have roof trusses and purlins permanently placed and riveted, on or before the 15th day of November, 1910.

(*d*) To have all other steel work, set out herein, fully completed on or before December 15th, 1910.

(*e*) Time shall be deemed to be the material and essence of this contract.

(*f*) Not to assign this contract without the written consent of the Commission.

(*g*) To deliver to the Commission a Bond satisfactory to the Commission to secure the sum of Eleven Hundred and Sixty Dollars ($1,160.00) for the proper performance of this contract. It shall be provided in said Bond that without notice to the surety the said documents and this contract, or any part thereof, may from time to time be varied, and that the said surety shall not be released, or the liability under the Bond affected by any such variation.

5. The Commission agrees:

(*a*) The Engineer shall pursuant to paragraph 7 of General Conditions, give his order to the contractors to proceed with the Work or Works herewith immediately.

(*b*) To pay the Contractors for the said Work the sum of Four Thousand, Six Hundred and Fifty Dollars ($4,650.00) on the dates and times set out in specifications.

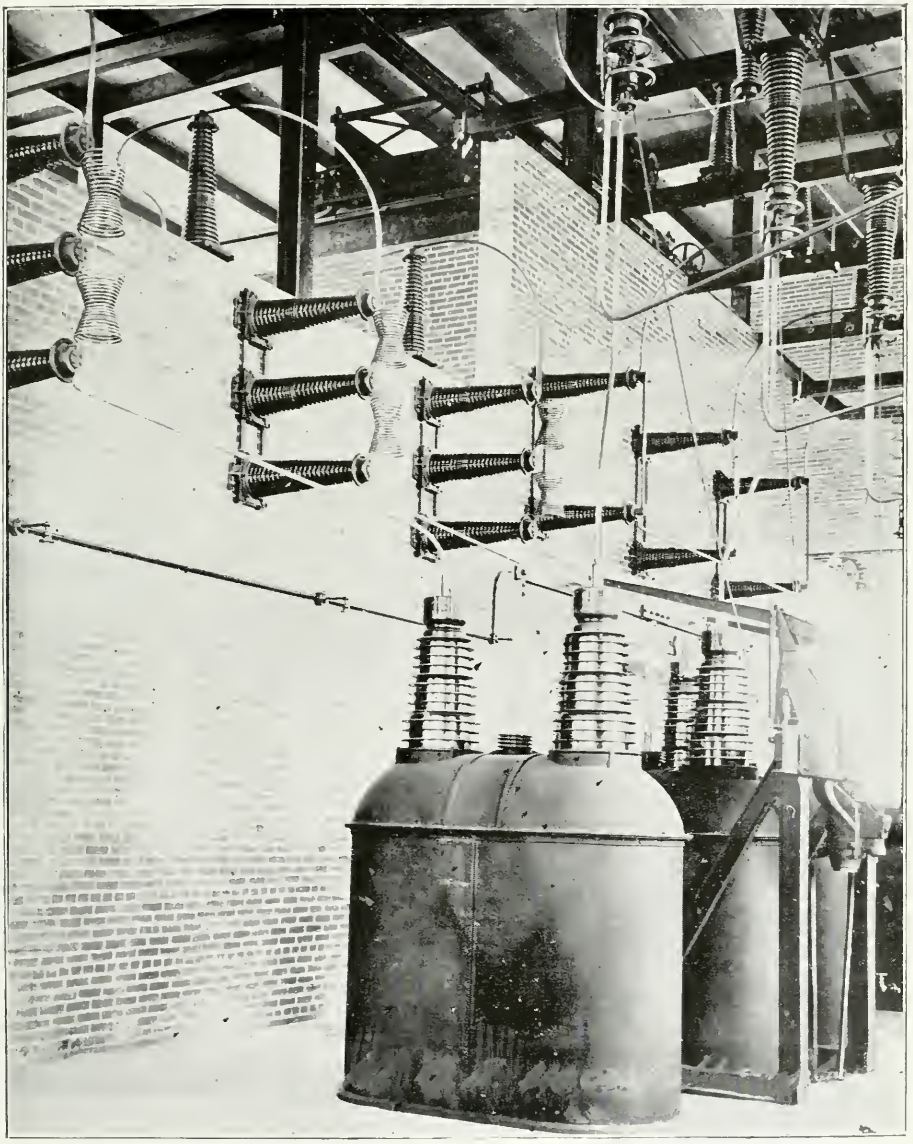
(*c*) To have bearing stones for the support of Roof Trusses permanently set on or before November 1st, 1910.

6. It is further mutually agreed:

(*a*) That Commission's Chief Engineer shall be the sole judge as to whether the said contract has been completed and the Work or Works done in accordance with specifications and drawings attached hereto, and no payment, certificate, or other act, matter or thing, done or omitted under this contract, shall bar or prejudice the rights of the Commission in this respect.

(*b*) If the contractors do not in the opinion of the engineer carry on the works with sufficient speed to complete the work on said dates, the Commission may at its option be released from this agreement and the contractors shall upon notice in writing, immediately discontinue the works, and if required by the said engineer, the contractors shall immediately remove the whole or any part of the said equipment, works, or material, to be specified by the engineer, that has been delivered to the Commission, and the Commission may at its option proceed with the said works. The Commission shall not be liable for any loss, costs or damages arising before or after the release of the Commission from this agreement.

(*c*) All the rights and remedies of the Commission and of the engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

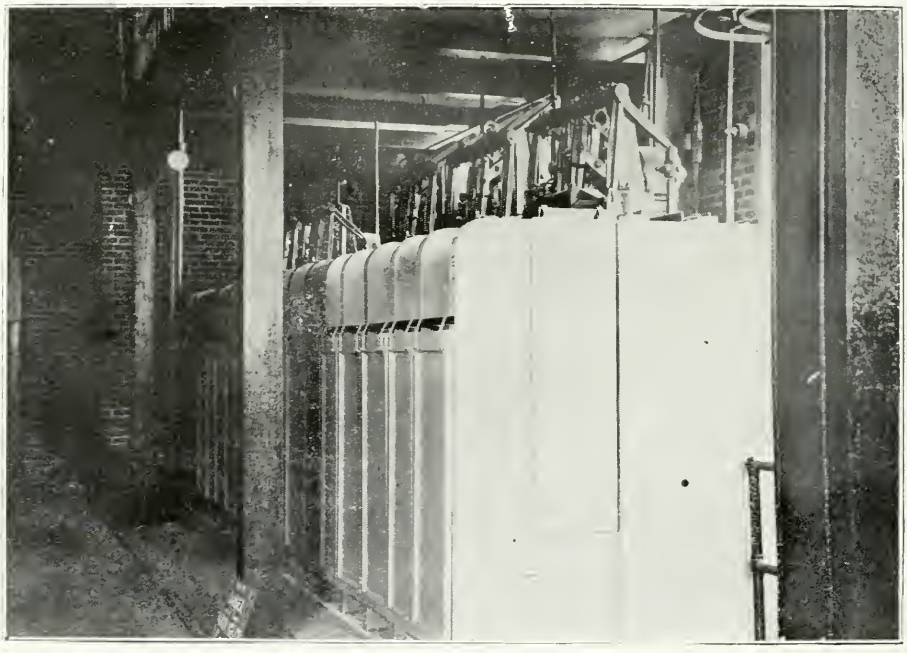


High Tension Switch, London Station.

(*d*) If within twelve months from date of the final certificate of the engineer, it appears that unsound or defective material has been used by the contractors, or the said works have not been executed in a substantial, proper, and workmanlike manner, the contractors shall be liable to the Commission for all damages arising

therefrom. No certificate, payment, or other act, matter or thing, done or omitted under this contract, shall bar or prejudice the rights of the Commission in this respect.

(*e*) In case the corporation of the Town of Brampton, or any other person, firm or corporation, which has or shall contract with the Commission for a supply of power, or any person or company which has or shall contract for the building, electrical or other appliances in any way connected with the plan of said transformer station, shall suffer damages by breach of this contract by the contractors, and such municipal corporation, firm, person or corporation would, if the contractors had made this contract directly with them have a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for, or on behalf of, such municipal corporation, person, firm or corporation, and not-



13,200 Volt Bus Structure, London Station

withstanding any acts, decision or rule of law to the contrary the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation, shall have agreed with the Commission to pay any costs that may be adjudged to be paid. The rights and remedies of any such municipal corporation, person, firm, or corporation shall not be hereby prejudiced.

7. Neither party shall be liable for damages for breach of contract, caused by strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war, or any other cause reasonably beyond its control, and should any delay in the performance of this contract be caused to any party thereby, the contractors shall not be bound

to deliver or the Commission shall not be bound to accept the work or works or material during such time, and the time for the performance of this contract by both parties shall be correspondingly extended.

Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption in so far as they are able, and when such interruption shall have ceased, the parties shall be prompt and diligent to perform the contract.

Provided that in construing this paragraph the doctrine of "ejusdem generis" shall not be applied.

8. (*a*) If any difference shall arise during the progress or after the completion of the works, as to any matter or thing arising under or out of this contract, such difference or differences, shall when the work is completed be referred to two arbitrators, one to be chosen by each of the parties hereto and they shall choose a third arbitrator, but if they cannot agree, such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators, as provided by the Arbitration Act, O.S. 1909, Chap. 35, but no such appeal shall be carried beyond the decision of the Court of Appeal of Ontario.

(*b*) The arbitrators shall not consider any matter or difference which is expressly or by implication required or permitted to be decided by the Engineer, or as to the grounds upon which in the opinion they have been formed, or discretion exercised by the engineer. If any such matter or difference shall arise and the Contractors claim that such matter or difference shall be determined by arbitrators, the contractors may apply in writing to the Commission, to waive this paragraph 8 (*b*) and permit the said matter or difference to be referred under paragraph 8 (*a*) to said arbitrators.

This agreement shall extend to and be binding upon and enure to the benefit of the heirs, executors, administrators, successors and assigns of the said parties respectively.

IN WITNESS WHEREOF the Commission and the Contractors have respectively affixed their Corporate Seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED

in the presence of

[Seal.]

JENKS DRESSER COMPANY LIMITED, of Sarnia.

(*Sgd.*) R. M. NORTON, Sec'y.

[Seal.]

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

(Sgd.) A. BECK, Chairman.
(Sgd.) W. W. POPE, Secretary.

Guelph Station.

A 13,200 volt oil switch with switchboard panel and meters and an electrolytic arrester were installed in our Guelph Transformer Station to supply energy to the Ontario Agricultural College. The wiring is arranged to provide for the transmission of energy over either of two lines running to the College. The electrical equipment was supplied and installed by the Canadian General Electric Company, and the concrete cell work was built by the Commission, since it was not considered advisable to have outside masons working in the station.

Woodstock Station.

The Corporation of Tillsonburg was not included in the original system, and since they entered into a contract at a later date, it was necessary to make provision for the additional energy supply in the Woodstock Station. An oil switch switchboard panel with meters and a lightning arrester were installed. The oil switch was supplied by the Canadian General Electric Company, and the balance of the equipment by the Canadian Westinghouse Company.

Waterdown District.

Energy is to be supplied to the Village of Waterdown and the vicinity by three 75 kv-a. transformers stepping down from 13,200 volts to 2,200 volts, which will be furnished under contract installed by the Canadian Crocker-Wheeler Company for $1,950.00. The switching equipment will be supplied and installed by the Canadian General Electric Company at a cost of $1,800.00, and consists of a 13,000 volt oil switch, a 13,000 volt shunted multigap arrester set with choke coils, and two feeder panels each with a recording meter. One feeder supplies the Village of Waterdown, the other supplies the Dominion Sewer Pipe Company near Waterdown.

Arrangements were made with the Dominion Sewer Pipe Company whereby our equipment might be installed in one of their buildings, thereby saving the expense of constructing a transformer station building.

The manufacture of the apparatus is now under way and it is expected the station will be in operation before the end of December.

This station is supplied with power by a single circuit line from the Dundas Sub-Station.

Port Stanley.

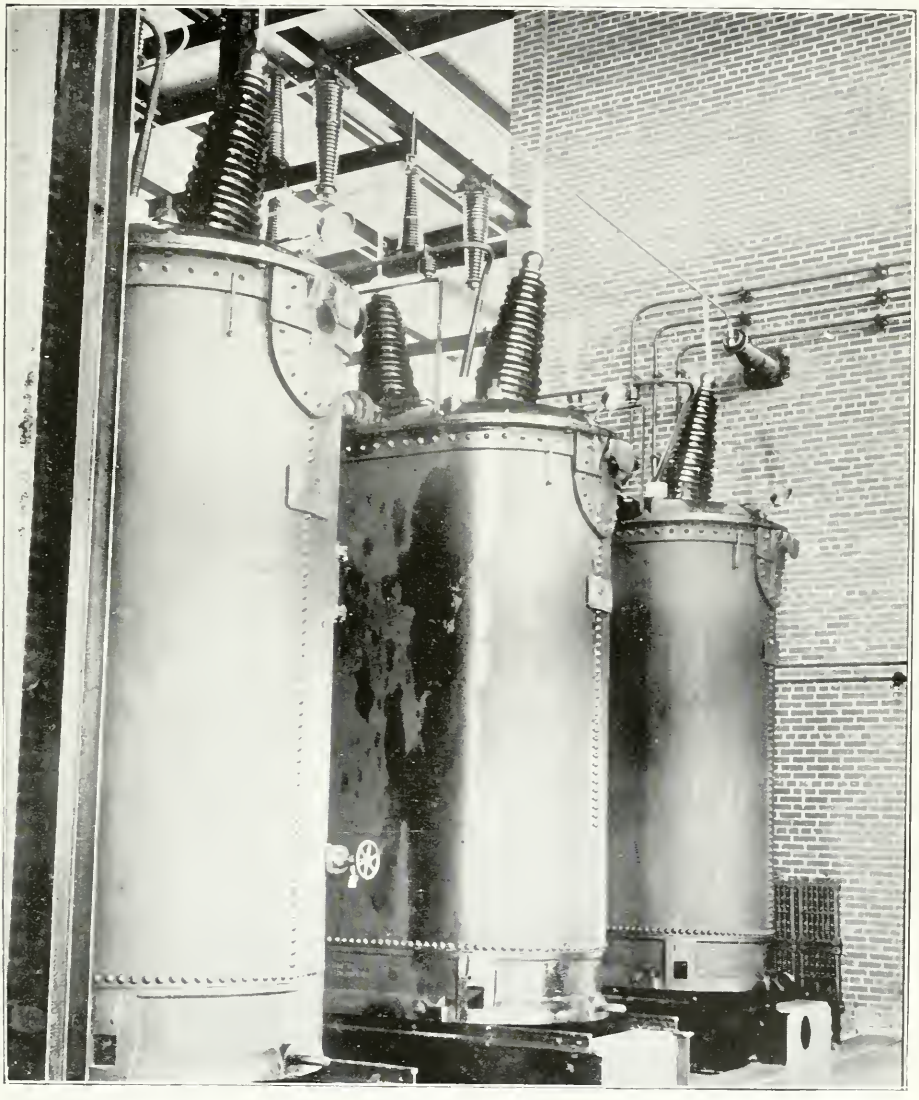
The equipment required for supplying this Corporation consists of three 50 kv-a., 13,200/2,300 transformers, a 13,200 volt oil switch, 13,200 volt lightning arrester, and a 2,200 volt feeder switch with recording wattmeter. The building to house apparatus will be provided by the Corporation. The Commission will purchase and install the equipment. Siemens Bros. Dynamo Works has the contract for the equipment. Energy will be supplied from St. Thomas transformer station.

Norwich.

This equipment is similar to that required for Port Stanley. The Corporation will provide and construct the building in accordance with drawings furnished by the Commission. The Siemens Company will supply the equipment. Energy to be supplied from Woodstock transformer station.

Beachville.

The same conditions exist here relative to the construction of the sub-station and the supply of the equipment as at Norwich. Woodstock transformer station will supply the energy.



Transformers, St. Thomas Station.

Since there are several villages at present considering taking energy from the System, it was considered advisable to purchase a complete station equipment for an extra station similar to those just mentioned, and accordingly a contract was made with the Siemens Dynamo Works for four complete equipments (Port Stanley, Norwich and Beachville, and one extra).

A copy of the agreement with Siemens Brothers Dynamo Works for the equipment for the above four stations is as follows:—

THIS AGREEMENT made this Fourth day of October, A.D. 1911.

BETWEEN:

SIEMENS BROTHERS DYNAMO WORKS, LIMITED, OF LONDON, ENGLAND, hereinafter called the "Contractors."

Party of the First Part.

and

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission."

Party of the Second Part.

WITNESSETH, that the parties covenant, promise and agree each with the other as follows:—

1. Wherever in this Indenture the Contractors or the Commission are referred to, such mention shall extend to and be binding upon the successors, or assigns of the said parties hereto respectively.

2. The following documents:—

(*a*) The Commission's specifications for electrical equipment for 150 kw. transformer station Port Stanley, Norwich, and Beachville, and 225 kw. transformer station Baden, No. P.N.B.B. 111006, marked "A."

(*b*) The Contractors' quotation No. 522, dated October 4th, marked "B."

(*c*) Blue print of Commission's drawings No. 3 E.M. 89, dated September 28th, 1911, marked "C," shall be read with and form part of this contract.

3. The Contractors agree:—

(*a*) To furnish all material and labor, to pay all freight charges, and deliver, install, test and place in satisfactory operating condition three (3) 50 kv-a., 25 cycle, single phase, transformers, including switching and protective apparatus, bus bars and wiring, as set out in the specifications and exhibits hereto attached, in the following stations, viz., in the Village of Port Stanley in the County of Elgin, in the Village of Norwich in the County of Oxford, and in the Police Village of Beachville in the County of Oxford; also three (3) 75 kv-a. transformers, 25 cycle, single phase, and all switching and protecting apparatus, bus bars and wiring, as set forth above, in the Station in the Police Village of Baden in the County of Waterloo, all as set forth in the said plans, specifications and exhibits attached hereto.

(*b*) To use the best material, and to construct, install, equip and test all of the above mentioned equipment in a thorough workmanlike manner and in strict conformity with the said plans, specifications and exhibits, and to the entire satisfaction of the Commission's Chief Engineer.

(*c*) To fully complete, install, test and deliver all apparatus covered by this contract in complete working order on or before the Twentieth day of March, A.D. 1912.

4. Time shall be considered to be material and of the essence of this contract.

5. The Commission agrees:—

To pay the Contractors for the said transformers, equipment and appliances when delivered, tested and installed upon the terms and conditions set forth in the said specifications, the sum of Twelve Thousand Five Hundred Dollars, ($12,500.00).

6. It is further agreed:—

(*a*) If the Contractors do not in the opinion of the Chief Engineer of the Commission carry on the work of installing and equipping the said transformers as provided herein with sufficient speed to complete the work at the said date, the Commission may at its option be released from this agreement, and the Contractors shall upon notice in writing immediately discontinue the works, and if required by the said Engineer, the Contractor shall immediately remove the whole or any part of the said equipment to be specified by the Engineer that has been delivered to the Commission, and the Commission may at its option proceed with the said works. The Commission shall not be liable for any loss, costs or damages arising before or after the release of the Commission from this agreement.

(*b*) All the rights and remedies of the Commission and of the Engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*c*) If within twelve months from the date of the final certificate of the Engineer, it appears that unsound or defective material has been used by the Contractors, or the said work has not been executed in a substantial, proper and workmanlike manner, the Contractors shall be liable to the Commission for all damages arising therefrom. No certificate, payment, or other act, matter or thing done or omitted under this contract, shall bar or prejudice the rights of the Commission in this respect.

(*d*) In case any municipal corporation, or any person, firm or corporation contracting with the Commission for a supply of power, or any person, firm or corporation which shall contract with such municipal corporation or with the Commission for a supply of power, shall suffer damages by breach of this Contract by the Contractors, and the said municipal corporations, person, firm or corporation would, if the Contractors had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of said Municipal Corporation, person, firm or Corporation, notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to receive such damages, but no action shall be brought by the Commission until such municipal corporation, person, firm or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

7. The contractors are not to assign or sublet this contract or any part thereof without the written consent of the Commission.

8. Notwithstanding anything contained herein to the contrary it is agreed that any inspection or approved certificates herein provided for in the work shall be understood as being only for the information of the Commission and shall not

be considered final, and shall not in any way relieve the contractors from the responsibility of completing this contract, and shall be subject to final inspection by the Engineer after the completion of the works.

9. For all purposes of this Indenture, notice shall be served upon the Engineer or his appointee for the Commission, and upon Arthur S. Herbert, Canadian Manager, or such other person as they may from time to time appoint as such, at their office in the City of Toronto, for the Contractors.

10. Neither party shall be liable for damages for breach of contract caused by strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war, or any other cause reasonably beyond its control, and should any delay in the performance of this contract be caused to either party thereby the Contractors shall not be bound to deliver, and the Commission shall not be bound to accept equipment during such time, and the time for performance of this contract by both parties shall be correspondingly extended.

Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption, in so far as they are able, and when such interruption shall have ceased the parties shall be prompt and diligent to perform the contract.

Provided that in constructing this paragraph the doctrine of "ejusdem generis" shall not be applied.

11. If the difference shall arise during the progress or after the completion of the works as to any matter or thing arising under or out of this contract, such difference shall be referred to three arbitrators, one to be appointed by each of the parties hereto, and the third to be appointed by such two arbitrators, or if they cannot agree, such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible the arbitrators shall decide such difference in a summary manner. Either party may appeal from an award of the arbitrators as provided by the Arbitration Act O.S. 1909, but no such appeal shall be carried beyond the decision of the Court of Appeal for Ontario.

12. This agreement shall extend to and be binding upon, and enure to the benefit of the successors and assigns of the said parties respectively.

IN WITNESS WHEREOF the Contractors and the Commission have respectively affixed their Corporate Seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED in the presence of

[Seal.]

SIEMENS BROTHERS DYNAMO WORKS, LIMITED, OF LONDON, ENGLAND.

(Sgd.) ARTHUR HERBERT, *Canadian Manager.*

[Seal.]

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

(Sgd.) A. BECK, *Chairman.*

(Sgd.) W. W. POPE, *Secretary.*

PORT ARTHUR SYSTEM.

An agreement was signed with the Kaministiquia Light and Power Company on September 9th, 1909, as outlined in the Second Annual Report, after which drawings were prepared at the Toronto Office and tenders registered at Port Arthur on October 25th, 1909, for the excavation and construction of foundations for a substation before winter. The contract for this work was awarded to Seamen and Penniman of Port Arthur, since these contractors were thought to be the most capable of carrying out the work in the time specified at $1,700.00.

The specifications for the electrical equipment were issued shortly after, and tenders called for on December 15th, 1909, and a contract awarded on February 15th, 1910, to the Siemens Bros. Dynamo Works for the entire equipment at $15,500.00. This equipment is employed in supplying energy to the City of Port Arthur, and has a rated capacity of 2,250 kw. at 2,200 volts.

The following is a copy of Agreement for supply and erection of Electrical Equipment (first installation).

THIS INDENTURE made this 15th day of February, A.D. 1910.

BETWEEN:

SIEMENS BROTHERS DYNAMO WORKS LIMITED, OF LONDON, ENGLAND, hereinafter called the "Contractors."

Of the First Part.

and

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission."

Of the Second Part.

WITNESSETH, that in consideration of the covenants and agreements on the part of the Commission hereinafter contained, the Contractors hereby covenant and agree with the Commission as follows:

1. In this Contract the word "WORKS" shall, unless the context requires a different meaning, mean the whole Work or Works, material, matters and things required to be done, furnished and performed by the Contractors under this contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the Work or Works.

2. Wherever in this Indenture the Contractors or Commission are mentioned or referred to, such mention or reference shall extend to and be binding upon the successors or assigns of the said Parties hereto respectively.

3. That the following documents:

(*a*) The Commission's General Conditions of Contract.

(*b*) The Commission's specifications for electrical equipment for Port Arthur step-down station together with the accompanying form of tender.

(*c*) The Commission's Drawings

4—S—P—003

2—S—P—004

(*d*) The Contractor's Drawings

C.N.111-7396
C.R.2865
C.N.111-734
S.C.N.5156-26406
C.R.3516
N.735
N.1171
G.11543
R.1741
N.1174
G.K.8639
N.12056
N.11494

(*e*) Contractors specifications and descriptions of equipment accompanying tender.

(*f*) Contractors drawings, as subsequently approved by Chief Engineer.

(*g*) Contractors Bonds:

One copy attached hereto, shall be read and form part of this contract.

4. The contractors covenant and agree to furnish, transport, and install free of all duty freight or other charges all the electrical apparatus and equipment required for the sub-station at Port Arthur in the Province of Ontario complete and ready for continuance service, the same to be completed and tested to the satisfaction of the engineer in strict accordance with the Commission's specifications for the sum not to exceed Fifteen Thousand Five Hundred Dollars ($15,500.00).

5. For the purposes of addition and subtraction during the period of this contract, the unit prices for apparatus erected complete shall apply; those unit prices shall be approximately as filled in the blank spaces for the purposes in the form of Indenture hereby attached.

6. The contractors shall furnish to the Commission not later than March 15, 1910 working and assembling drawings of the equipment, showing lay-out in the station, and all features necessary to complete the building design, in accordance with the specifications, and they shall also supply full descriptions and operating characteristics of all apparatus. Further information as may be required from time to time shall also be furnished by the contractors upon request, a reasonable time being allowed for furnishing the same.

7. The contractors will at their own expense, including all freight, duty and charges, provide all and every kind of labor, machinery, plant and material, articles or things whatsoever necessary for the due completion and test ready for continuous service of all the work set out or referred to in the accepted tender and specifications and drawings hereto attached, as well as the plans for drawing to be hereafter furnished of the work, and will execute fully and completely the said work in all respects, test and deliver over the same complete, ready for continuous service to the Commission on the date hereinafter mentioned. The said works to be constructed of the best material of their several kinds and furnished in the best and most workmanlike manner in strict conformity with the specifications and drawings relating thereto to the entire satisfaction of the Engineer.

8. The contractors shall provide a curve drawing recording power factor meter, the same to be approved by the Engineer.

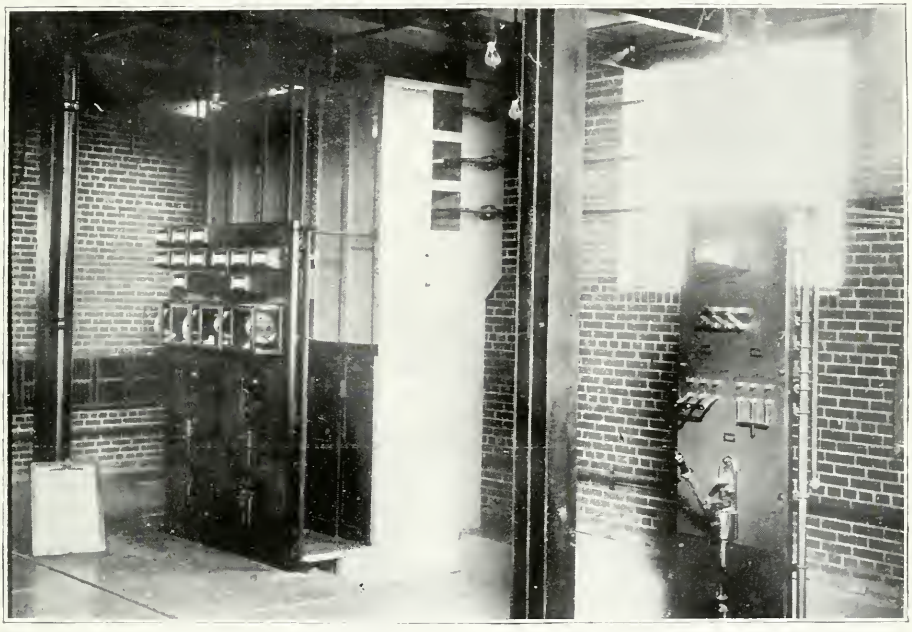
9. The switchboard panels to be of white carrara marble with wax finish, or slate with dull black finish as specified.

10. Transformers shall be of the shell type and shall be provided with expansion tank, also with all other necessary and proper accessories and details as specified, and all properly connected for continuous service. Temperature measurements for the purpose of determining the characteristics of the transformer may be made by either or both the thermometer or resistance methods.

11. The contactors to execute and complete the work in all particulars and test and deliver the same over to the Commission on or before the Fifteenth day of August, 1910.

12. Time shall be deemed to be material and of the essence of this contract.

13. (*a*) If the contractors do not in the opinion of the said Engineer, carry on the works with sufficient speed to complete the work at said dates, the Com-



Switchboard, St. Thomas Station.

mission may, at its option, be released from this agreement, and the contractors shall upon notice in writing immediately discontinue the works, and if required by the said engineer the contractors shall immediately remove the whole or any part of the said equipment to be specified by the engineer that has been delivered to the Commission, and the Commission may at its option proceed with the said works. The Commission shall not be liable for any loss, costs, or damages arising before or after the release of the Commission from this agreement.

(*b*) All the rights and remedies of the Commission and of the engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*c*) If within twelve months from the date of the final certificate of the engineer, it appears that unsound or defective material has been used by the contractor, or the said work has not been executed in a substantial, proper and

workmanlike manner, the contractor shall be liable to the Commission for all damages arising therefrom. No certificate payment, or other act, matter or thing done, or omitted under this contract, shall bar or prejudice the rights of the Commission in this respect.

(*d*) In case the corporation of the City of Port Arthur, which has contracted with the Commission for a supply of power, or any person, firm or corporation which shall contract with such municipal corporation or with the Commission for a supply of power shall suffer damages by breach of this contract by the contractors and said municipal corporation, firm or person would, if the contractors had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of said municipal corporation, person or firm, notwithstanding any acts, decision or rule of law to the contrary the Commission shall be entitled to all the rights and remedies of such municipal corporation, person or firm, including the right to receive such damages, but no action shall be brought by the Commission until such municipal corporation, person or firm, shall have agreed with the Commission to pay any costs that may be adjudged to be paid, the rights and remedies of any such municipal corporation, person or firm shall not be hereby prejudiced.

14. The contractors are not to assign or sub-let this contract or any part thereof without the written consent of the Commission.

15. The Commission agrees:

(*a*) That the engineer shall, pursuant to paragraph 7 of the Commission's General Conditions of contract attached hereto give his order to the contractors to proceed with the work at once and not later than the 4th day of March, 1910.

(*b*) To pay to the contractors or their legally appointed representative in Toronto for the said work, amount set out in paragraphs 4 and 5 of this contract, and in the specifications and tender attached thereto, which said payments will be made monthly upon engineer's certificates during the progress of installation as follows:

PAYMENT CLAUSE.

(*a*) Forty (40) per cent. of the contract amount upon the delivery in good order of the equipment at the station site, made in monthly payments equal to 85 per cent. of engineer's estimate of the value of the apparatus, and materials delivered, until the 40 per cent. has been paid.

(*b*) Additional thirty (30) per cent. of the contract amount upon the erection of the apparatus, made in monthly payments to equal 85 per cent. of engineer's estimate of work done, and apparatus erected, until the said 30 per cent. has been paid.

(*c*) Additional twenty (20) per cent. of the contract amount upon the completion of satisfactory tests, of apparatus at station, in monthly payments equal to 85 per cent. of engineer's certificates, until the said 20 per cent. has been paid.

(*d*) The balance of tender, or balance remaining unpaid at that time, ten (10) per cent. upon the final acceptance of the engineer.

16. Notwithstanding anything herein contained to the contrary it is agreed that any inspection or approved certificates herein provided for in the work shall

be understood as being only for the information of the Commission, and shall not be considered final, and shall not in any way relieve the contractors from the responsibility of completing this contract, and shall be subject to final inspection by the engineer after completion of the works.

17. For all purposes of this Indenture, notice shall be served upon the engineer, or his appointee, for the Commission, and upon Arthur S. Herbert, Canadian Manager, or such other person as they may from time to time appoint, as such, at their office in the City of Toronto, from the contractors.

18. The contractors to deliver to the Commission a bond satisfactory to the Commission to secure the sum of Three Thousand Eight Hundred and Seventy-

High Tension Entrance, Port Arthur Station.

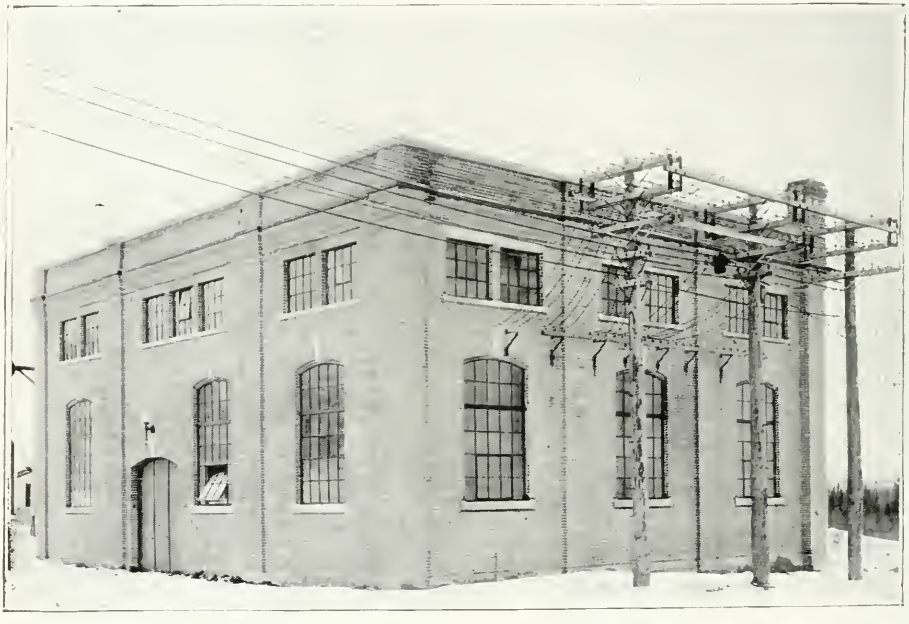
five Dollars ($3,875.00) for the proper performance of this contract, and the work set out therein. It shall be provided in said bond that without notice to the surety the said documents and the contract or parts thereof may from time to time be varied, and the said sureties shall not be released or the liability under the bond in any way affected thereby.

19. Neither party shall be liable for damages for breach of contract caused by strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war, or any other cause reasonably beyond its control, and should any delay in the performance of this contract be caused to either party thereby, the Contractors shall not be bound to deliver and the Commission shall not be bound to accept equipment during such time, and the time for performance of this contract by both parties shall be correspondingly extended.

Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption, in so far as they are able, and when such interruption shall have ceased the parties shall be prompt and diligent to perform the contract.

Providing that in construing this paragraph the doctrine of "ejusdem generis" shall not be applied.

20. (*a*) If any difference shall arise during the progress or after the completion of the Works, as to any matter or thing arising under or out of this contract, such difference shall be referred to three Arbitrators, one to be appointed by each of the parties hereto, and the third to be appointed by such two Arbitrators, or if they cannot agree, such third arbitrator shall be chosen by the Chief Justice



Low Tension Outlets, Port Arthur Station.

at the time of the King's Bench Division of the High Court of Justice. When possible, the arbitrators shall decide such difference in a summary manner. Either party may appeal from an award of the arbitrators as provided by the Arbitration Act R.S.O. Chapter 62, but no such appeal shall be carried beyond the decision of the Court of Appeal for Ontario.

(*b*) The Arbitrators shall not consider any matter or difference which is expressly or by implication required or permitted to be decided by the Engineer, or as to grounds upon which or mode in which any opinion may have been formed or discretion exercised by the Engineer. If any such matter or difference shall arise and the Contractors claim that such matter or difference should be determined by arbitrators, the Contractors may apply in writing to the Commission, to waive this paragraph 20 (*b*); thereupon the Commission shall appoint a time and place to hear any representations of the Engineer or Contractors, and the Commission

may, in its sole discretion waive the provisions of this paragraph 20 (*b*) and permit the said matter or difference to be referred under paragaph 20 (*a*) to said Arbitrators.

21. This agreement shall extend to and be binding upon, and enure to the benefit of the successors and assigns of the said parties respectively.

IN WITNESS WHEREOF the Contractors and the Commission have respectively affixed their Corporate Seals, and the hands of their respective officers.

SIGNED, SEALED AND DELIVERED. WITNESS to the signature of Siemens Brothers Dynamo Works. "W. W. Macauley Pope."	SIEMENS BROTHERS DYNAMO WORKS, LIMITED, OF LONDON, ENGLAND "Siemens Brothers Dynamo Works, Ltd." per M. B. Logan."
[SEAL.]	
[SEAL.]	HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO. (Sgd.) A. BECK, *Chairman.* (Sgd.) W. W. POPE, *Secretary.*

Later, the City of Port Arthur required additional feeder equipment, and on October 14th, 1910, a second requisition was placed on the Siemens Company for switching and recording equipment to the value of $4,040.

Arrangements were also made by which the city was allowed to place considerable of the street railway equipment in our station, since the space was available for such installation, and the operating costs were reduced considerably by this arrangement.

During the Winter Season of 1910 and 1911, the demand on this station was considerably greater than had been anticipated and the question of providing reserve transformer capacity was discussed with the municipal authorities. The proposition appealed to them especially, since they wished to have reserve energy available to supply new industries which might decide to locate at Port Arthur. Accordingly an additional contract was made with Siemens Bros. to the amount of $11,200, which called for the delivery of three 750 kv.-a. transformers and the necessary switching equipment. The equipment is at present being installed, and will be ready for operation before the Winter Load occurs.

Tenders were requested for the construction of the building superstructure during May, 1910, and on June 22nd the contract was awarded to A. L. McRae of Port Arthur at $15,150. This work was carried out by him during 1910 as well as that required in connection with some minor contracts and additional work as follows:—

Sept. 16.—$1,350 to build high tension bus and switch structures.
Oct. 15.—An order for sprinkling tank on the basis of cost plus 15 per cent.

A copy of this agreement with Mr. McRae is as follows:—

THIS INDENTURE made this 28th day of July, A.D. 1910.

BETWEEN:

J. L. McRAE, of the TOWN of PORT ARTHUR, in the PROVINCE of ONTARIO, hereinafter called the "Contractor"

of the First Part

— and —

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission"

of the Second Part.

WITNESSETH, that in consideration of the covenants and agreements on the part of the Commission hereinafter contained, the Contractor hereby covenants and agrees with the Commission as follows:—

1. In this contract the word "Work" or "Works" shall, unless the context requires a different meaning, mean the whole of the Work or Works, and material, matters and things required to be done, furnished and performed by the Contractor under this Contract. The word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission and having control over the Work or Works.

2. Wherever in this Indenture the Contractor or Commission are mentioned or referred to, such mention or reference shall extend to, and be binding upon the heirs, executors, administrators, successors, or assigns of the said parties respectively.

3. That the following documents:—

(*a*) Commission's Instructions to Bidders for the Construction of Transformer Station Building, Port Arthur, dated 4th May, 1910 Two pages.

(*b*) Form of Tender (revised) dated June 7th, 1910. Six pages.

(*c*) Commission's Specifications for Step-down Transformer Station Building, Port Arthur, P.A. 100428, containing 19 pages with index, together with the following drawings:

4-S-P001	Dated	April	25th,	1910.
4-S-P005	"	"	24th	"
4-S-P007	"	"	27th	"
4-S-P008	"	"	28th	"
4-S-P009	"	"	29th	"
4-S-P010	"	"	27th	"
4-S-P011	"	"	30th	"
4-S-P012	"	"	30th	"
4-S-P013	"	"	29th	"

(*d*) General Conditions of Contract B. 90601.

(*e*) General specifications for material and class description of work entering into the construction of Station Buildings B. 90602.

(*f*) Contractor's bond.

shall be read with and form part of this contract.

4. The Contractor covenants and agrees:—

(*a*) To supply all material, labor, tools, machinery and other plant, and

complete in every respect in strict accordance with the specifications and drawings, or as they may be amended from time to time, the step-down transformer station building superstructure at Port Arthur, Ontario.

(*b*) To use the best material and complete the said work in a thorough, substantial, workmanlike manner in strict conformity with the drawings, exhibits and specifications, except as amended in paragraph 6, Clause A and B, to the entire satisfaction of the Commission's Chief Engineer, for the sum of Fifteen Thousand One Hundred and Fifty Dollars ($15,150).

(*c*) To fully complete the said works on or before the Fifteenth (15th) day of September, A.D. 1910.

(*d*) Time shall be deemed to be the material and essence of this contract.

(*e*) For all purposes of this Indenture, notice shall be served upon the Engineer, or his appointee for the Commission, and by the mailing of a letter postage prepaid, addressed to the Contractor, Port Arthur, Ontario, for the Contractor.

22,000 Volt Transmission Line, Port Arthur, Ont.

(*f*) To deliver to the Commission a Bond satisfactory to the Commission to secure the sum approximately, Three Thousand Seven Hundred and Eighty Dollars ($3,780) for the proper performance of this contract. It shall be provided in said Bond that without Notice to the surety the said documents and this contract or any part or parts thereof may from time to time be varied, and that the said surety shall not be released, or the liability under the bond affected by any such variations.

(*g*) Not to assign or sublet this contract without the written consent of the Commission.

(*h*) That the unit prices stated in the Tender shall be used to adjust the contract prices in case of addition to, or deduction from, the amounts as indicated in the drawings or called for in the specifications.

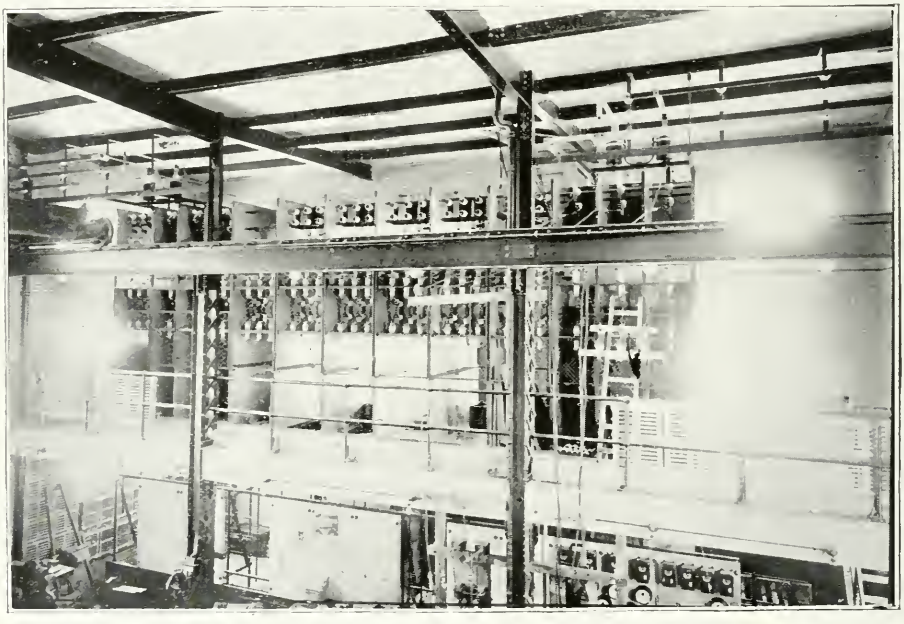
5. The Commission agrees:—

(*a*) That the Engineer shall, pursuant to Paragraph 7 of the General Conditions of Contract, give his order to the Contractor to proceed with the Work or Works at once.

(*b*) To pay to the Contractor for the said Works upon the terms and conditions set out in the specifications, and upon the terms particularly mentioned in Paragraph 4, Clauses A, B, and C.

6. Contractor agrees:—

(*a*) That the Engineer may (as provided in Section 9 General Conditions of Contract) within one month order the contract to be reduced by omitting the ceiling suspended from roof, and the tar and gravel roofing. In the event of such reduction the contract price shall be reduced by an amount determined by the unit prices contained in the tender.



Low Tension Busses, Port Arthur Station.

(*b*) It is mutally agreed, that the first grade local sand lime brick will be used in place of pressed brick as specified. With this exception the specifications for brick work shall apply.

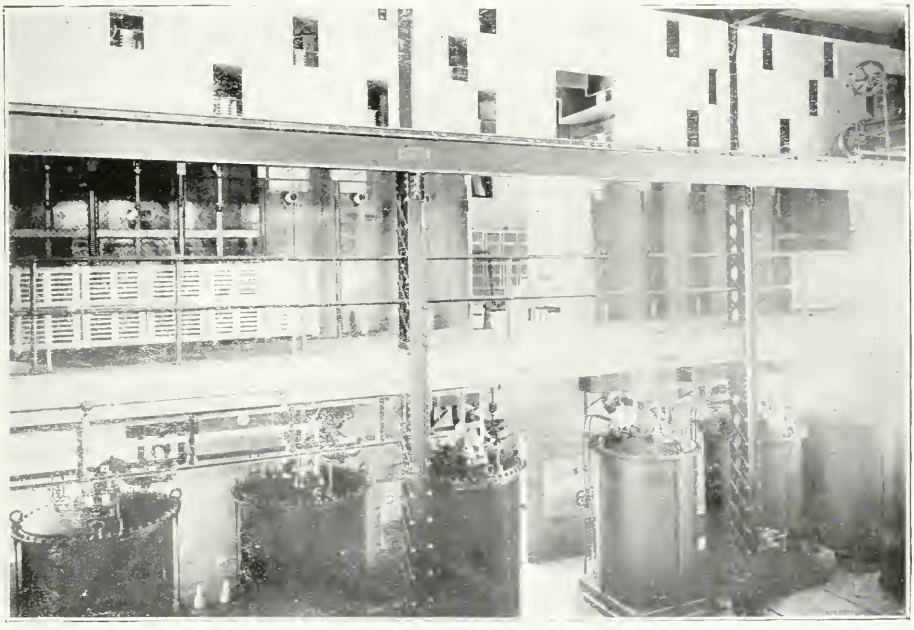
(*c*) That the Commission's Chief Engineer shall be sole judge as to whether the said contract has been completed and the Work or Works done in every respect in accordance with the specifications and drawings attached hereto, and no payment certificate or other Act, matter or thing done or omitted under this contract shall bar or prejudice the rights of the Commission in this respect.

(*d*) If the Contractor does not, in the opinion of the said Engineer, carry on the Works with sufficient speed to complete the work on said dates, the Commission may at its option be releaser from this agreement, and the Contractor shall upon notice in writing, immediately discontinue the Works, and if required by the said Engineer, the Contractor shall immediately remove the whole or any part of the

said equipment, works or material, to be specified by the Engineer, that has been delivered to the Commission, and the Commission may at its option proceed with the said Works. The Commission shall not be liable for any loss, costs or damages arising before or after the release of the Commission from this agreement.

(*e*) All the rights and remedies of the Commission and of the Engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*f*) If within twelve months from the date of the final certificate of the Engineer, it appears that unsound or defective material has been used by the Contractor, or the said works have not been executed in a substantial, proper, and workmanlike manner, the Contractor shall be liable to the Commission for all damages arising therefrom. No certificate, payment, or other act, matter or thing



High Tension Busses and Transformers, Port Arthur Station.

done or omitted under this contract shall bar or prejudice the rights of the Commission in this respect.

(g) In case any Municipal Corporation which shall contract with the Commission for a supply of power, or any such Municipal Corporation, or with the Commission for a supply of power, shall suffer damage by breach of this contract by the Contractor, and such municipal corporation, firm, person or corporation would, if the Contractor had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings, or bring such action for, or on behalf of, such municipal corporation, person, firm or corporation, and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation,

person, firm or corporation, shall have agreed with the Commission to pay any costs that may be adjudged to be paid. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

7. Neither party shall be liable for damages for breach of contract caused by strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war, or any other cause reasonably beyond its control and should any delay in the performance of this contract be caused to either party thereby the Contractor shall not be bound to deliver or the Commission shall not be bound to accept the Work or Works or material during such time, and the time for performance of this contract by both parties shall be correspondingly extended.

Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption in so far as they are able, and when such interruption shall have ceased, the parties shall be prompt and diligent to perform the contract.

Provided that in construing this paragraph the doctrine of "ejusdem generis" shall not be applied.

8. (*a*) If any difference shall arise during the progress or after the completion of the Works, as to any matter or thing arising under or out of this contract, such difference or differences shall when the work is completed, be referred to two arbitrators, one to be chosen by each of the parties hereto, and they shall choose a third arbitrator, but if they cannot agree, such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible, the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators, as provided by the Arbitration Act, O.S. 1909, Chap. 35, but no such appeal shall be carried beyond the decision of the Court of Appeal of Ontario.

(*b*) The arbitrators shall not consider any matter or difference which is expressly or by implication required or permitted to be decided by the Engineer, or as to the grounds upon which, or mode in which, any opinion may have been formed, or discretion exercised by the Engineer. If any such matter or difference shall arise, and the Contractors claim that such matter or difference should be determined by arbitrators, the Contractors may apply in writing to the Commission to waive this paragraph 8 (*b*) and permit the said matter or difference to be referred under paragraph 8 (*a*) to said arbitrators.

9. This agreement shall extend to, and be binding upon, and enure to the benefit of the heirs, executors, administrators, successors, and assigns of the said parties respectively.

IN WITNESS WHEREOF the Commission and the Contractors have respectively affixed their Corporate Seals and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED

in the presence of

(Sgd.) JOHN L. MCRAE.

[SEAL.]

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

(Sgd.) A. BECK, *Chairman.*

(Sgd.) W. W. POPE, *Secretary.*

Mechanical Equipment.

Tenders for the boiler were called for on July 18th, 1910, and an order was issued on the Taylor-Forbes Company for the boiler erected and covered at $369.

On September 19th, tenders were requested for radiators and on the 20th an order was placed with the same firm for radiators to the extent of $498.61.

On September 27th tenders were called for installation of the heating system, and awarded to A. C. Waltz Company of Port Arthur for $533.00. The tenders for the lighting system were called for on October 5th, and the contract was also awarded to the same firm for $366.00, who submitted the lowest tender.

In addition to being awarded these contracts, this same contractor was instructed on November 5th to install the oil, water and air systems on the basis of cost plus 15 per cent., involving about $200.00.

The valves for heating and other systems were supplied by the Canadian Fairbanks Company under previous contract.

Tenders were requested for an oil storage tank, and on July 19th the contract was awarded to Goldie and McCulloch of Galt, at $157.00.

In October tenders were submitted for a water pump. An order was placed with the Gould Pump Company on November 9th for motor-driven pump at a cost of $147.00.

In awarding the above contracts, the lowest tenderer received the order in each case, if upon investiagtion he was found competent to undertake the work and construct it in accordance with the specifications.

After considerable investigation an order was placed with the Geo. Anderson Company of Scotland, for a hand power crane of 15 tons capacity at $1,152. This firm failed to make delivery within the specified time and after the expiration of a liberal extension of time, since the crane had not been shipped, the order was cancelled and placed with the Advance Machine Company at $1,190 for delivery in seven weeks.

All this equipment has been installed during the period of this report.

Description of Installation.

The 22,000 volt three-phase lines pass through choke coils, disconnecting switches, and automatic oil switches to busses. The transformer banks are connected to the busses through automatic oil switches. Combination horn gap and oil damped resistance lightning arresters protect the incoming lines, and are connected just inside the entrance bushings.

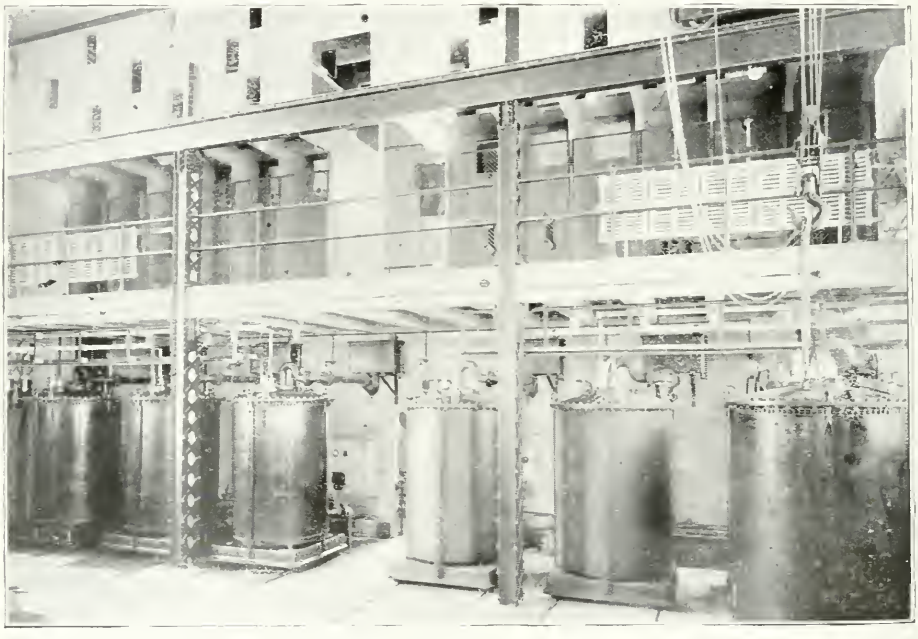
Each transformer bank consists of three 750 kv-a. oil-insulated water-cooled units connected in star on the high tension side and in delta on the low tension side. A spare 750 kv-a. transformer is provided to replace any which might become disabled.

The transformers and high tension equipment are located along one side of the building and gallery, over these is the 22,000 volt switch and bus. The low tension switches, busses and switchboards are similarly located on the opposite side of the building, while a main aisle the full height of the building over which a travelling crane runs, is provided for erection purposes as well as for any rotating machinery which the Corporation of Port Arthur may require.

Since the building was completed the Street Railway Department of the City has installed a 750 kv-a. motor generator set, converting the power from 2,200 volts three-phase, 60 cycle, to 600 volts direct current. The 2,200 volt leads on leaving the transformers pass across the main aisle in conduit to the low tension

equipment where they divide into two parts, each passing through an oil switch to a bus. According to the agreement between the Corporation and the Commission, the latter's equipment ended at the bus, but at the request of the Corporation several feeders were added, and may be connected by means of a three-pole double throw switch to either set of busses.

The type of construction employed for the building is similar to that of the other buildings in the Niagara System and the general specifications which were prepared for the former were utilized for the latter. The arrangement of this piping system is, in general, similar except that no air piping or oil filter have as yet been installed. The municipal water service was available for use, and only one water circulating pump was installed. It was later discovered, however, that the elevation of the station rendered the city water supply unreliable, and as a



High Tension Busses and Transformers, Port Arthur Station.

result, an open concrete sprinkling tank of a design similar to that employed at Niagara Falls was installed.

The operating board is located under the low tension gallery and opposite the transformers, and carries the low tension switches and all recording and indicating apparatus. The high tension switch controllers are placed on separate panels near the transformers. All switches are hand operated.

Transmission Line.

Specifications for this line were being prepared when the agreement with the Kaministiquia Light and Power Company was signed in September 9th, 1909.

On December 20th, 1909, specifications were issued and tenders called for by January 31st, 1910. Eighteen Contractors were notified, and three tenders received by the latter date. It was found advisable to furnish considerable material direct from the supply houses and the contract was awarded to the Hinners-Jones Electric Company of Fort William for $8,997.10.

The line consists of two three-phase circuits of aluminum cable on separate poles, is about two miles in length and operates at 22,000 volts, 60 cycles.

The following is a copy of the agreement with the Hinners-Jones Electric Company:—

THIS INDENTURE made this Fourth day of April, A.D. 1910.

BETWEEN:

HINNERS AND JONES ELECTRIC COMPANY of FORT WILLIAM, ONTARIO, hereinafter called the "Contractors"

of the First Part

and

THE HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO, hereinafter called the "Commission"

of the Second Part.

WITNESSETH, that in consideration of the Covenants and Agreements on the part of the Commission hereinafter contained, the Contractors hereby covenant and agree with the Commission as follows:—

1. In this contract the word "Work" or "Works" shall, unless the context requires a different meaning, mean the whole Work or Works, and material, matters and things required to be done, furnished and performed by the Contractors under this contract: the word "Engineer" shall mean the Chief Engineer for the time being appointed by the Commission, and having control over the Work or Works.

2. Wherever in this Indenture the Contractors or Commission are mentioned or referred to, such mention or reference shall extend to and be binding upon the executors, administrators, successors, or assigns of the said Parties respectively.

3. That the following documents:—

(*a*) The Commission's General Conditions of Contract.

(*b*) The Commission's Specifications for 25,000 volt transmission line for Port Arthur, with revised Form of Tender attached thereto.

(*c*) Drawings:

3-T-159, revised to December 16th, 1909.
4-T-190.
1-T-61.
1-T-62.
1-T-64.

(*d*) Contractors' Bond:

shall be read into and form part of this Contract.

4. The Contractors covenant and agree to furnish all necessary materials (excepting materials supplied by the Commission as hereinafter provided), labor, tools, machinery and other plant, and to build, erect and complete, in a satisfactory and workmanlike manner, all Work or Works required in connection with the installation of two 25,000 volt, single current wood pole transmission lines, and one telephone circuit at or near Port Arthur, in the Province of Ontario, each approximately four miles long, all according to agreements, specifications and drawings, exhibited to the Contractors and attached hereto, for the sum of Eight Thousand Nine Hundred and Ninety Seven Dollars and Twenty Cents ($8,997.20).

5. All poles shall be according to specifications, with 8 in. tops, and a maximum sweep of one inch in every five feet measurements, to be made as specified.

6. All poles shall be provided with peak castings for the second ground wire.

7. The Commission will supply the following materials f.o.b. Port Arthur:—

(*a*) Aluminum Cables and Tie Wires.

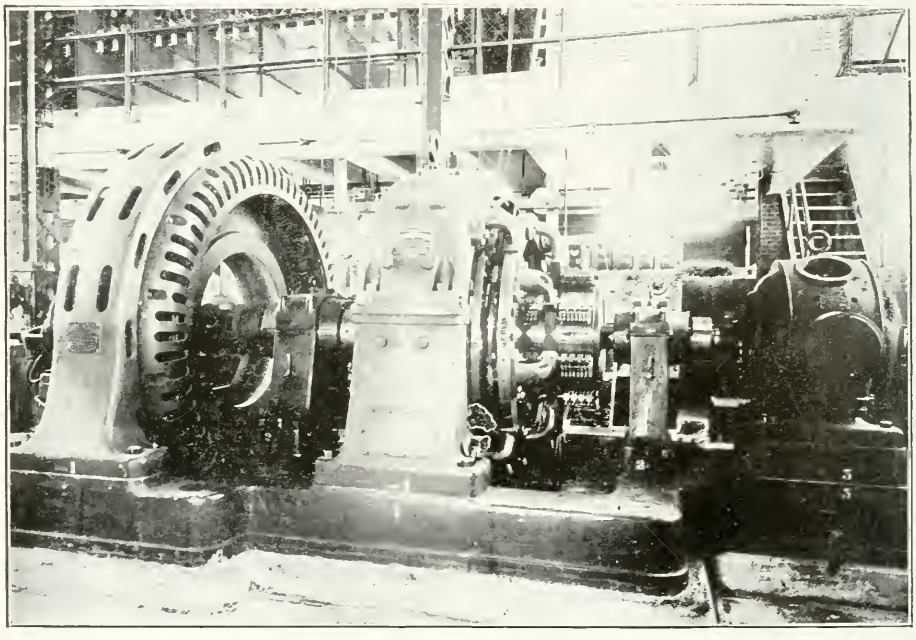
(*b*) Telephone Wire and Tie Wires.

(*c*) Ground Cables with Tie Wires.

(*d*) 25,000 Volt Porcelain Insulators.

8. The Commission will also provide the right-of-way for the said line.

9. For the purpose of addition and subtraction from the Work, the unit price set forth in the revised Form of Tender shall apply, it being understood that the specified distance of four miles is approximate only.



Motor Generator Set, Port Arthur Station.

10. The Contractors will at their own expense provide all and every kind of labor, machinery, plant and material, articles or things whatsoever, except as hereinbefore set out and necessary for the due completion and test ready for continuous service of all the Work or Works set out or referred to in the accepted Tenders, and specifications and drawings, hereto attached, and will execute fully and completely the said Work in all respects, test and deliver over the same, complete ready for continuous service to the Commission, on the date hereinafter mentioned. The said Works to be constructed of the best material of their several kinds and finished in the best and most workmanlike manner, in strict conformity with the specifications and drawings relating thereto, to the entire satisfaction of the Engineer.

11. The Contractors to execute and complete the Work in all particulars, and test and deliver the same over to the Commission, on or before the 1st day of June, A.D. 1910.

12. Time shall be deemed to be material, and of the essence of this Contract.

13. For all purposes of this Indenture, notice shall be served upon the Engineer, or his appointee for the Commission and upon the Contractors at their office in Fort William, Ontario, for the Contractors.

14. The Contractors to deliver to the Commission a bond satisfactory to the Commission to secure the sum of Two Thousand Three Hundred Dollars ($2,300.00) for the proper performance of this contract and the work set out therein. It shall be provided in said bond that without notice to the surety the said documents and the contract or parts thereof may from time to time be varied and the sureties shall not be released or the liability under the bond in any way affected thereby.

15. The Contractors are not to assign this contract or any part thereof without the written consent of the Commission.

16. The Commission agrees:—

(*a*) That the Engineer shall, pursuant to paragraph 7 of the Commission's General Conditions of contract attached hereto, give his order to the Contractors to proceed with the work at once, and not later than the 15th day of April, 1910.

(*b*) To pay the Contractors or their legally appointed representatives in Fort William for the said work, the amount set out in paragraph 4 of this Contract, and in the specifications and Tender attached hereto, which said payment will be made monthly upon Engineer's certificates, during progress as follows:—

The Engineer shall make at the end of each month a progress estimate of all work done, and material delivered, and within twenty-five days thereafter, eighty-five (85) per cent., less previous payments of the money due as based upon this estimate shall be paid the contractor in cash.

17. Notwithstanding anything herein contained to the contrary, it is agreed that any inspection or approved certificates herein provided for in the work shall be understood as being only for the information of the Commission, and shall not be considered final, and shall not in any way relieve the Contractors from responsibility of completing this contract, and shall be subject to final inspection by the Engineer after completion of the works.

18. It is further agreed:—

(*a*) If the Contractors do not in the opinion of the said Engineer, carry on the works with sufficient speed to complete the work at said dates, the Commission may, at its option, be released from this agreement, and the Contractors shall upon notice in writing immediately discontinue the works, and if required by the said Engineer the Contractors shall immediately remove the whole or any part of the said equipment to be specified by the Engineer that has been delivered to the Commission, and the committee may at its option proceed with the said works. The Commission shall not be liable for any loss, costs or damages arising before or after the release of the Commission from this agreement.

(*b*) All the rights and remedies of the Commission and of the Engineer, acting on their behalf, may be exercised and continued concurrently or in the alternative.

(*c*) If within twelve months from the date of the final Certificate of the Engineer, it appears that unsound or defective material has been used or delivered by the Contractor, or the said works have not been executed in a substantial, proper and workmanlike manner, the Contractor shall be liable to the Commission for

all damages arising therefrom. No certificate payment, or other act, matter or thing done or omitted under this contract shall bar or prejudice the rights of the Commission in this respect.

(*d*) In case the Municipal Corporation of the City of Port Arthur has contracted with the Commission for a supply of power, or any person, firm or corporation which shall contract with such Municipal Corporation, or with the Commission for a supply of power, shall suffer damages by breach of this contract by the Contractors, and such municipal corporation, firm, person or corporation would, if the Contractors had made this contract directly with them, have had a right to recover such damages or commence any proceedings or any other remedy, the Commission shall be entitled to commence any such proceedings or bring such action for or on behalf of such municipal corporation, person, firm or corporation,

2,200 Volt Pole Line, Penetang Station.

and notwithstanding any acts, decision or rule of law to the contrary, the Commission shall be entitled to all the rights and remedies of such municipal corporation, person, firm or corporation, including the right to recover such damages, but no action shall be brought by the Commission until such municipal corporation, person or firm, or corporation shall have agreed with the Commission to pay any costs that may be adjudged to be paid. The rights and remedies of any such municipal corporation, person, firm or corporation shall not be hereby prejudiced.

19. Neither party shall be liable for damage for breach of contract caused by strikes, lock-outs, accidents, riots, fires, explosions, acts of God, war or any other cause reasonably beyond its control and should any delay in the performance of this contract be caused to either party thereby, the Contractors shall not be bound to deliver or the Commission shall not be bound to accept equipment during such time, and the time for performance of this contract by both parties shall be correspondingly extended.

Provided further that the parties shall be prompt and diligent to remove the cause or causes of interruption in so far as they are able, and when such interruption shall have ceased the parties shall be prompt and diligent to perform the contract.

Provided that in construing this paragraph the doctrine of "ejusdem generis" shall not be applied.

20 (*a*) If any difference shall arise during the progress or after the completion of the Works as to any matter or thing arising under or out of this contract, such differences shall be referred to three arbitrators; one to be appointed by each of the parties hereto, and the third to be appointed by such two arbitrators, or if they cannot agree such third arbitrator shall be chosen by the Chief Justice at the time of the King's Bench Division of the High Court of Justice. When possible, the arbitrators shall decide such difference in a summary manner. Either party may appeal from any award of the arbitrators as provided by the Arbitration Act R.S.O.C. Chap. 62, but no such appeal shall be carried beyond the decision of the Court of Appeal for Ontario.

(*b*) The arbitrators shall not consider any matter or difference which is expressly or by implication required or permitted to be decided by the Engineer, or as to grounds upon which, or mode in which, any option may have been formed, or discretion exercised by the Engineer. If any such matter or difference shall arise and the Contractors claim that such matter or difference should be determined by arbitrators, the Contractors may apply in writing to the Commission, to waive this paragraph 20 (*b*); thereupon the Commission shall appoint a time and place to hear any representations of the Engineer or Contractors, and the Commission may, at its sole discretion, waive the provisions of this paragraph 20 (*b*) and permit the said matter or difference to be referred under paragraph 20 (*a*) to said arbitrators.

21. This agreement shall extend to and be binding upon and enure to the benefit of the successors and assigns of the said parties respectively.

IN WITNESS WHEREOF the Contractors and the Commission have respectively affixed their Corporate Seals, and the hands of their proper officers.

SIGNED, SEALED AND DELIVERED in the presence of

[SEAL.]

[SEAL.]

TINNERS AND JONES ELECTRIC COMPANY OF FORT WILLIAM, ONTARIO.

(Sgd.) F. S. JONES.

HYDRO-ELECTRIC POWER COMMISSION OF ONTARIO.

(Sgd.) A. BECK, *Chairman.*
(Sgd.) W. W. POPE, *Secretary.*

The construction of the transmission lines was started early in the spring of 1910, but several changes were made by the City of Port Arthur which required an increase in the length of a number of poles, and resulted in considerable revision of the right-of-way.

Considerable quicksand and muskeg were encountered, and necessitated a large amount of special work so that lines were not completed until the spring of 1911, although the first of the two lines was ready for operation at the close of the season of 1910.

The lines were erected along independent streets for considerable distance in Port Arthur, while for about one-half mile, they were built parallel, 14 ft. apart, along an old railway right-of-way. The remainder of the line was built along each side of highway.

The majority of the poles were Western Cedar, the arms treated short-leaf yellow pine and the pins treated locust. The entire line was tested out at a potential of 25 per cent. over normal operating conditions, and in this as well as other particulars proved satisfactory.

SIMCOE SYSTEM.

A contract was entered into between the Simcoe Railway and Power Company, and the Commission (which is elsewhere described) to provide for a supply of electrical energy to Midland and Penetanguishene.

The energy supplied Midland is obtained from the Power Company at 2,200 volts, three-phase, 60 cycles at their substation in Midland, metered and delivered directly to the Corporation.

The Town of Penetanguishene is supplied with energy from the Power Company at 22,000 volts, three-phase, 60 cycles, at a point on their line near their Midland substation. The Commission constructed a single circuit wooden pole line from this point to Pentanguishene, a distance of 4.5 miles. The line was erected to follow the streets of Midland, and they run across country to Penetanguishene. It consists of No. 2 B & S aluminum cable supported by thirty-five 40 ft. poles, with a ground wire strung along the pole peaks. Telephone wires were also run the entire length of the line erected on these poles to provide communication between the different stations. The cost to date of the line, including right-of-way, is about $9,000.00. When all accounts are paid, the cost will not exceed $9,200.00.

The Commission constructed a transformer station in Penetanguishene in which were installed two 200 kv-a. transformers connected in open delta, and stepping down from the line voltage to 2,300 volts, three-phase for distribution by the Corporation. An automatic oil switch is provided where the line enters the station, and the equipment is protected with electrolytic lightning arresters.

Tenders were called and contracts awarded as follows:—

Transformers, Can. Crocker-Wheeler Co.	$1,600
Switching & Protective Equipment, Can. Westinghouse Co..	2,550
Building, W. Blanchard, Penetanguishene	1,600

The building is constructed of red brick with a re-inforced concrete roof supported on steel beams. The general appearance and type of construction are the same as other stations of the Commission. In order to minimize operating costs, the station was located adjoining the pumping-station of the Corporation.

CHAPTER IV.

OPERATION OF THE SYSTEMS.

NIAGARA SYSTEM

The first actual operation of the Niagara System occurred on May 18th, 1910, when the 2,200 ft., 12,000 volt, lead covered, underground cables furnished by the Messrs. Siemens Bros. Dynamo Works, and connecting the Niagara Transformer Station with the Ontario Power Company, were placed in test operation. The test included the measurement of the resistance and capacity of the cables and also the application of 30,000 volts, for a period of five minutes, between each of the three conductors, as well as between the conductors and the lead sheath.

Some difficulty was experienced in obtaining a suitable equipment with sufficient capacity to test the entire length of cable at 30,000 volts, but finally a portable testing set belonging to the Westinghouse Company was secured and the test completed on May 23rd. All of the cables successfully withstood this test with the exception of one joint which was later satisfactorily remade.

The insulation resistance was measured by means of a 15,000 ohm Kelvin galvanometer operated with 75 dry cells, and found to vary from 225 to 325 megohms between the conductors and the lead sheath, whereas, the contract guarantees call for not less than 100 megohms. The insulation resistance between the conductors of the cables measured between two conductors at a time was 2,335 megohms.

The electrostatic capacity of the cables were measured with a 0.495 microfarad standard condenser used in conjunction with this same galvanometer.

The capacities of the cables were uniform and averaged 0.101 microfarad between individual conductors for the whole length of the cable.

The ohmic resistance of the cables was found to be 0.184 ohm per mile of conductor, at a temperature of 60 degrees fahr.

After the installation of apparatus and wiring in the different transformer stations, the following high voltage tests were made by the manufacturers of the apparatus.

The 110,000 volt transformers were first tested between the high tension windings and ground for a period of one minute at 220,000 volts. A double potential test was then performed by operating them for five minutes with 127,000 volts applied across the high tension terminals, and with the low tension windings open-circuited. This latter test was made to ascertain if any weakness existed between the individual turns of the coils. The transformers in all of the stations satisfactorily withstood these tests, although at the Guelph Station one of them developed a short circuit between turns immediately after the first application of line potential. However, this feature was occasioned by a spot in the insulation of one of the high tension coils which had not been properly dried, and the defect was immediately repaired by the manufacturer.

The high voltage test on the station wiring consisted of the application of 220,000 volts between each of the phases and ground for one minute, and was made to include switch bushings, station line entrances, and all parts of the wiring and switching apparatus, with the exception of the 110,000 volt electrolytic lightning

arresters which, in many cases, had not then been installed. The bushings of the high tension lightning arresters had previously been subjected to a 220,000 volt test at the factory, and it was therefore considered unnecessary to repeat the test at the stations.

The low tension wiring and busbars at the stations were tested at 27,000 volts between ground for a period of one minute. No trouble developed on the tests of the low tension wiring except that some of the porcelain tubes in the bus structures were found to leak over, and were at once replaced.

The first energy was delivered to the Niagara step-up transformer station from the Ontario Power Company at 12,000 volts on August 25th, 1910. On this and the several succeeding days tests at full voltages were made on the underground cables connecting with the Ontario Power Company's plant by starting at a low voltage and building up gradually to normal. In a few cases, higher voltages than 12,000 was attained in order to test the cables thoroughly. On September 4th, the 110,000 volt lines between Niagara and Berlin, by way of Dundas, Guelph and Preston, a distance of approximately one hundred miles were operated for the first time. Transformers were connected to the line only at Niagara and Berlin, and the test was started at a very low voltage as in the previous cases, and gradually increased during a period lasting approximately one hour, until 15,000 volts were obtained from the generators of the Ontario Power Company, and a voltage of approximately 148,000 volts attained between the conductors of the high tension line. The test was satisfactory in all respects. The only phenomena observed being the static or coronal displays on the line conductors and the high tension wiring of the stations. This was barely noticeable at 110,000 volts, but when a potential of 135,000 volts was attained, the aluminum cables suddenly emanated a distinct crackling sound. The line losses, measured by switchboard watt-meters at Niagara, were found to be 200 kw. at 110,000 volts and 2,200 kw. at 148,000 volts. Between the potentials of 135,000 and 148,000 volts the losses increased considerably faster proportionately than the voltage. Similar tests made in the dark showed that the line conductors became luminous simultaneously with the discharges at 135,000 volts, and developed greater luminosity as the voltage was further increased.

Tests similar to those just described were continued at intervals until October 11th, when energy was officially delivered to Berlin, although power for testing purposes had been supplied to the Berlin Municipal Station on September 6th. A celebration which was attended by City Officials from the towns in the Niagara District as well as by eminent engineers from all parts of the country, was held at Berlin on October 11th, 1910, in commemoration of the first energy being supplied to a municipality from Niagara Falls through the Hydro-Electric scheme.

Interesting addresses were given relating to the history of the Hydro-Electric project from the time of its inception to its successful issue, after which the energy was officially turned on in the auditorium, tastefully decorated with electric mottoes and the seals of the various Municipalities. A large portion of the hall was set aside for exhibits by various electrical manufacturers, and on the same evening an elaborate banquet was given, at the close of which speeches were made by various prominent representatives of the Commission and the different municipalities.

During the month of November, energy was supplied to the Municipalities of Guelph, Woodstock, Preston and Waterloo; and in December the municipalities of London and Stratford, and the Beach Pumping Station to Hamilton were connected to the system. London held a celebration similar to that at Berlin on

HORSE-POWER
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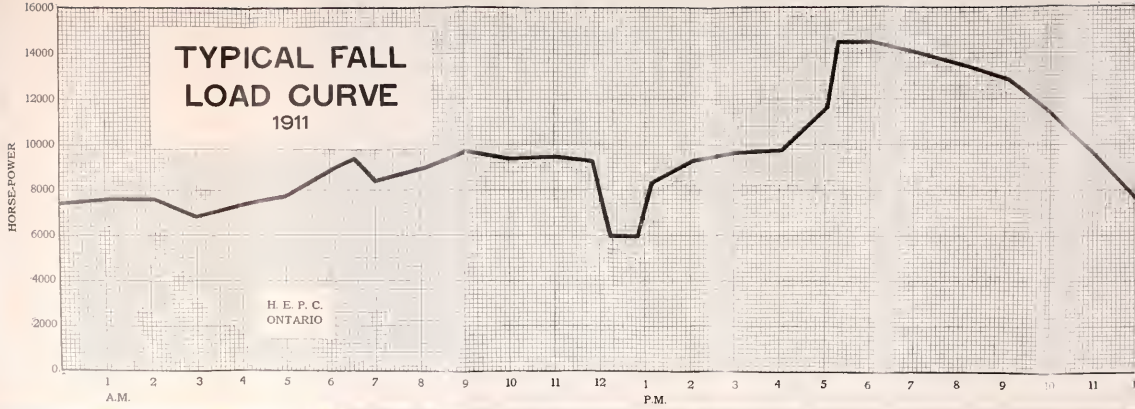
TYPICAL FALL
LOAD CURVE
1911
HORSE-POWER
16000
14000
12000
10000
8000
6000
4000
2000
0
H. E. P. C.
ONTARIO
1
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A.M.
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December 21st. The Municipalities of Dundas and Hespeler were connected in January, and in February St. Thomas and New Hamburg were supplied with energy. In the meantime, the high tension transmission lines had been completed to all points embraced in the original scheme. Energy was first delivered to Toronto Sub-station on February 24th. Toronto first took energy for lighting in March, at which date Galt was also connected. During the latter part of the month the Galt, Preston and Hespeler Railway was supplied Commission energy at their Berlin sub-station. Ingersoll was connected in May, and in July the Port Credit Brick Company and Tillsonburg contracted. Weston began using energy in August, and Mitchell in September, making in all twenty municipalities and two industrial corporations supplied by the system.

The following table shows the municipalities taking energy at the present time, the date of the first service together with the maximum load used the first month, and the maximum load for the month of October 1911. The probable requirements for energy by the municipalities during the early months of 1912 is also given.

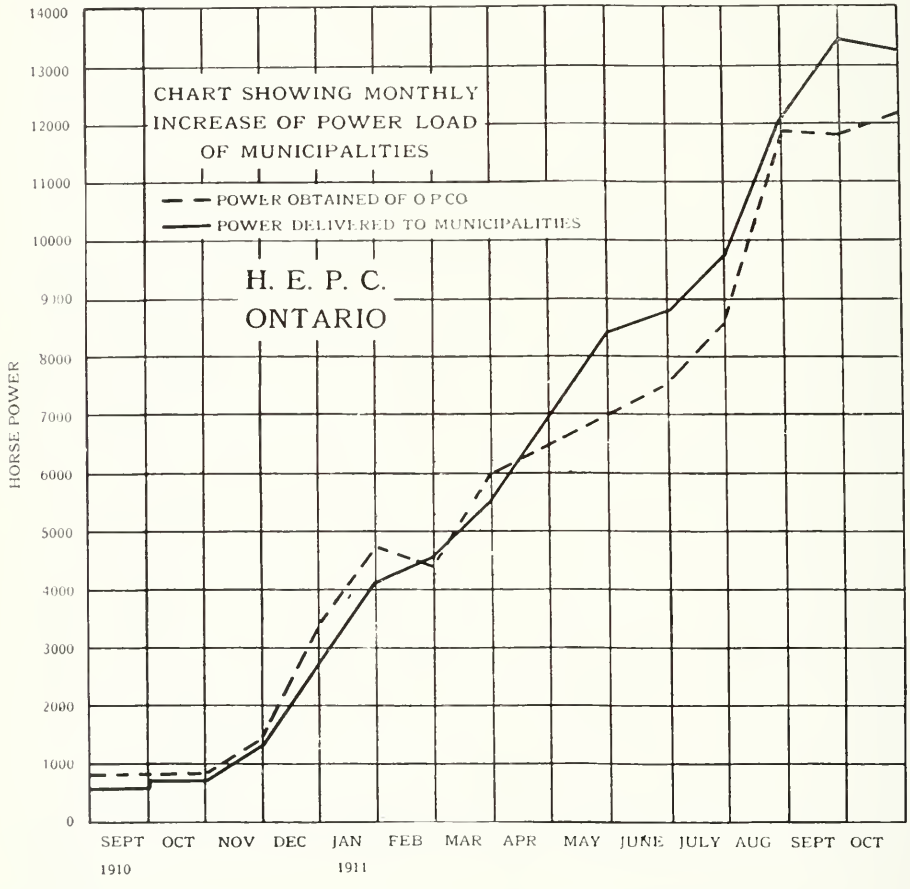
The amount of energy supplied by the Ontario Power Company during the month of October 1911 was 12,092.5 h.p., and the sum of the peak loads taken by the municipalities was 13,169.5 h.p., making an excess of 1,076.5 h.p. sold to the municipalities over and above that purchased by the Commission. This excess of energy varies from month to month because of the manner in which the different peak loads overlap, and also because the line losses vary with the weather conditions. During the winter months the peak loads taken by the municipalities are determined by the amount of energy required for lighting purposes, and are therefore more apt to coincide, thereby tending to reduce the excess amount of energy sold over that purchased.

Municipality	Date of first taking energy.	Max. load taken first month of operation.	Max. load Oct., 1911.	Probable load for 1912.
		h.p.	h.p.	h.p.
Berlin	Sept. 29th, 1910..	604	1,045	1,500
Guelph	Nov. 13th, 1910..	248	898	1,000
Waterloo	Nov. 13th, 1910..	167	241	350
Preston	Nov. 29th, 1910..	134	322	400
Woodstock	Nov. 30th, 1910..	450	804	1,000
London	Dec. 2nd, 1910..	805	1,609	2,200
Hamilton	Dec. 20th, 1910..	1,062	1,252	1,500
Stratford	Dec. 25th, 1910..	54	469	500
Hespeler	Jan. 5th, 1911..	87	201	200
Dundas	Jan. 2nd, 1911..	10	55	100
New Hamburg	Feb. 3rd, 1911..	100	107	110
St. Thomas	Feb. 22nd, 1911..	134	469	800
Galt	Mar. 15th, 1911..	80.5	335	400
Toronto	Mar. 24th, 1911..	805	3,318	6,000
C. P. & H. Ry	Mar. 27th, 1911..	334.5	536	500
Ingersoll	April 1st, 1911..	167.5	201	300
St. Mary's	April 21st, 1911..	134.6	241	350
Port Credit Brick Co	June 18th, 1911..	469.5	670	670
Tillsonburg	July 1st, 1911..	53.6	127	200
Weston	Aug. 4th, 1911..	80.4	80	110
Mitchell	Sept. 11th, 1911..	147.5	168	200
Brampton	Oct. 16th, 1911..	21	21	200
Seaforth				300
Waterdown				160
Totals			13,164	19,050

An accompanying curve shows the manner in which the total load has increased since the beginning of operation.

The load factor of the system is fairly high and for eighteen hours of the day the average load is roughly 75 per cent. of the maximum. A typical load curve of total energy used during the fall months of 1911 is also shown.

Because of the extent of the high tension system and its high voltage there is an appreciable charging current taken from the Niagara Station, the power factor of which is very low, and leading in phase. At the beginning of operation when the load of the system was very light, the power factor at Niagara Falls was lower



than 70 per cent. leading. As the load has increased a large number of transformers, induction motors and smaller equipment have been added which, in themselves, produce a lagging power factor. As a result, the 85 per cent. leading power factor on the lines at Niagara will shortly change to a lagging power factor. A number of the municipalities have provided synchronous condensers to control the power factor of their loads. These municipalities are in this way enabled to keep their power factor well above the 90 per cent., the value specified in the contract. A number of the smaller municipalities, however, have not yet found it convenient to correct their power factor, and as a result, in some instances, it runs very low.

CHART SHOWING POWER CONSUMED BY MUNICIPALITIES.

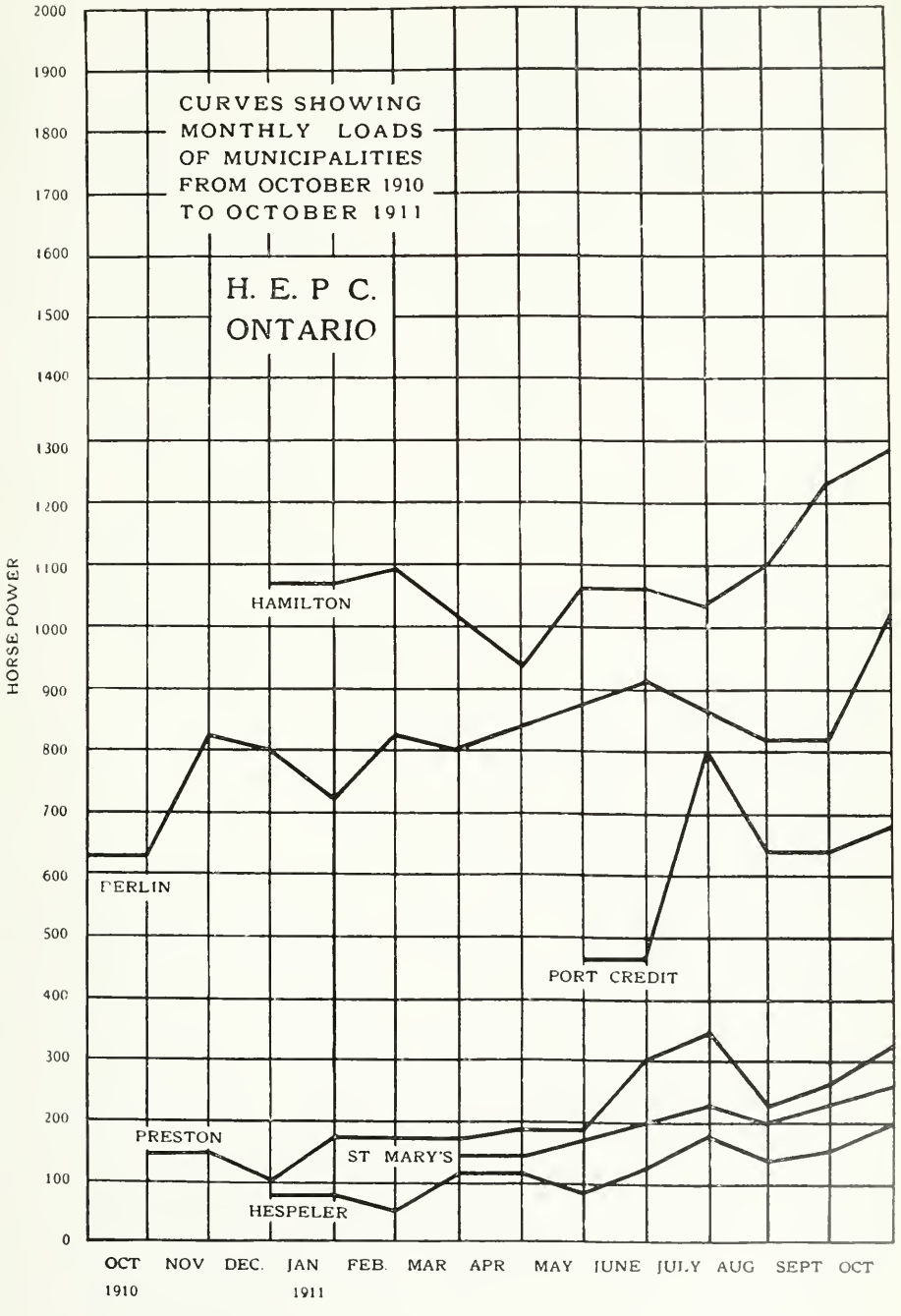


CHART SHOWING POWER CONSUMED BY MUNICIPALITIES.

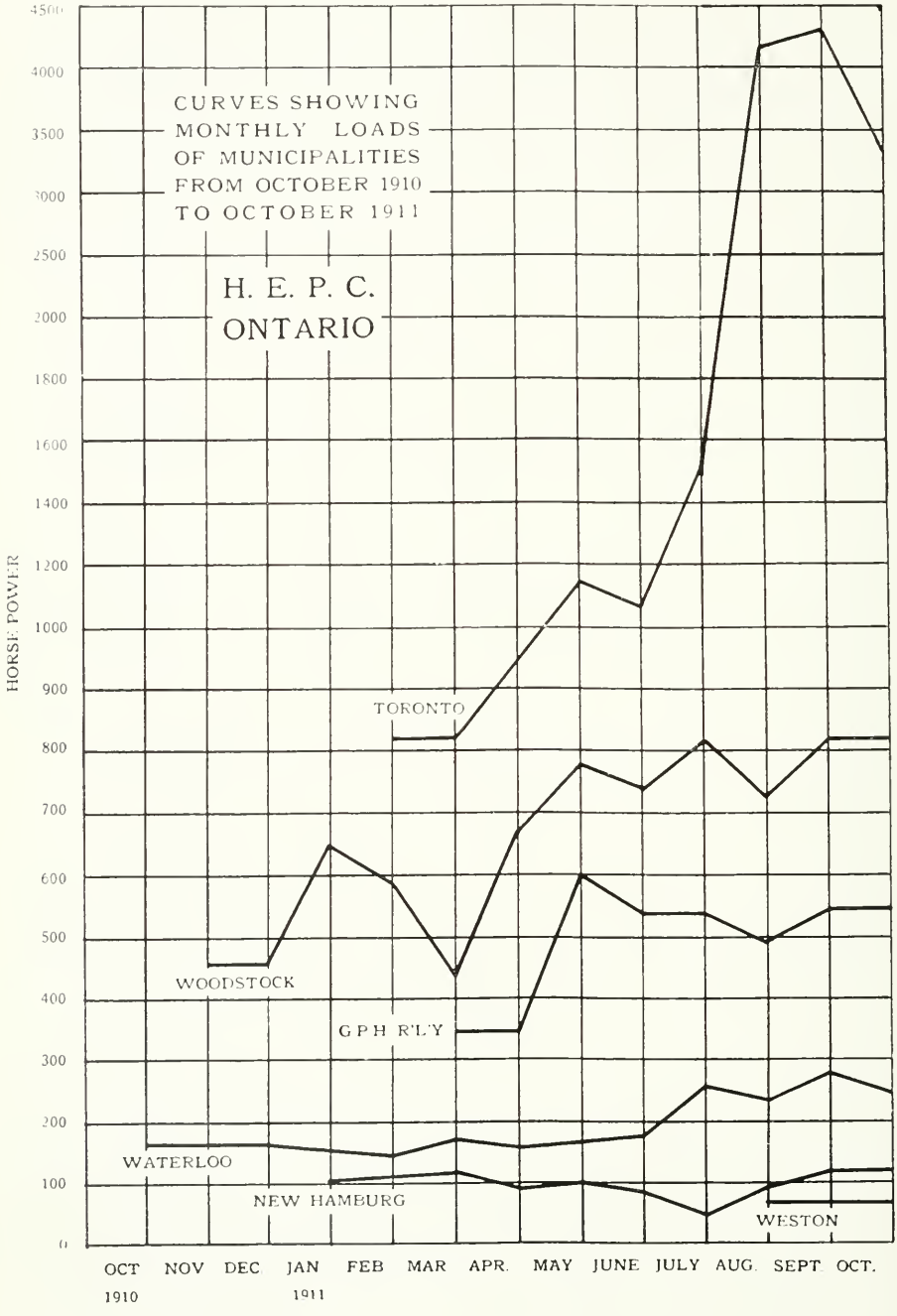


CHART SHOWING POWER CONSUMED BY MUNICIPALITIES.

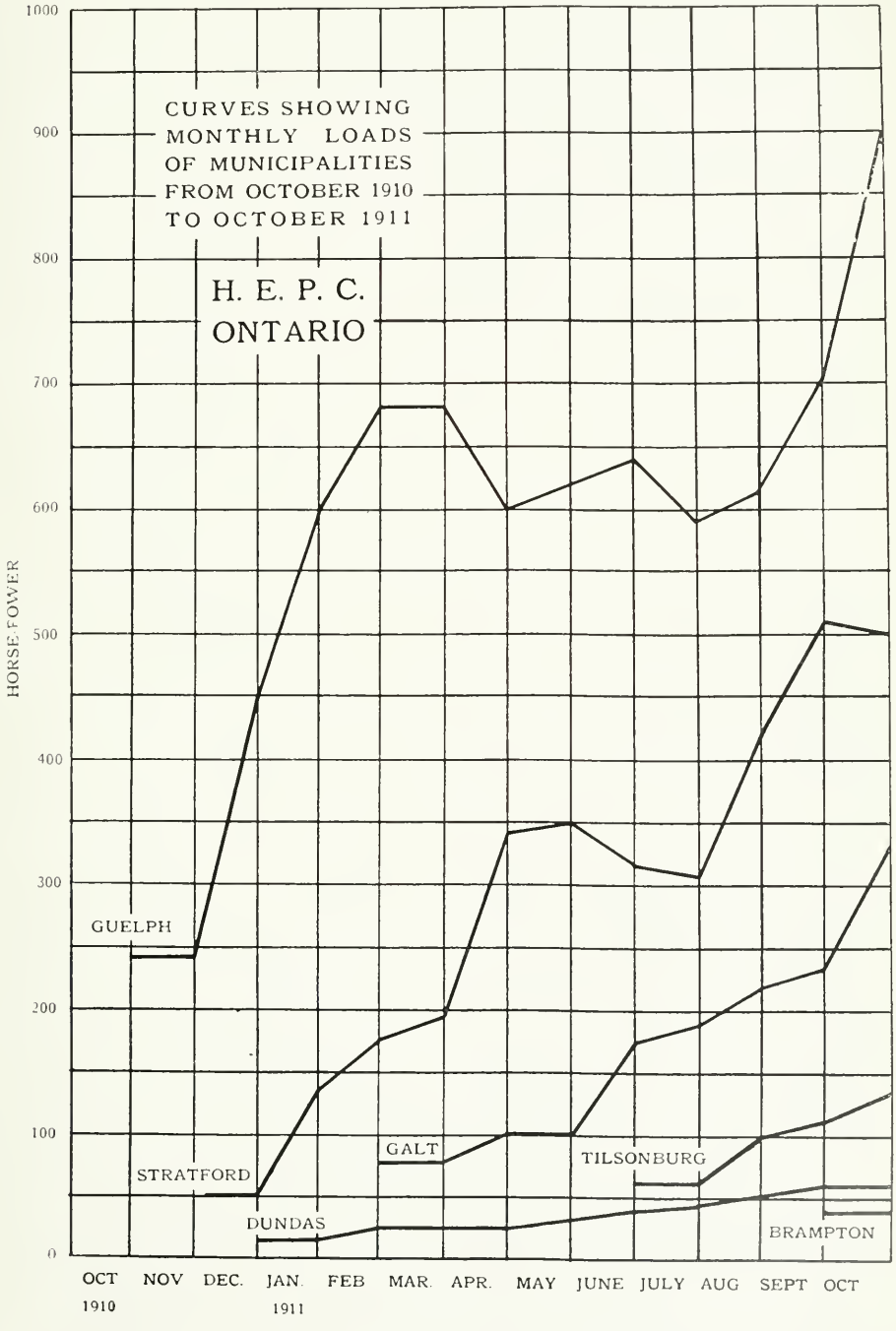
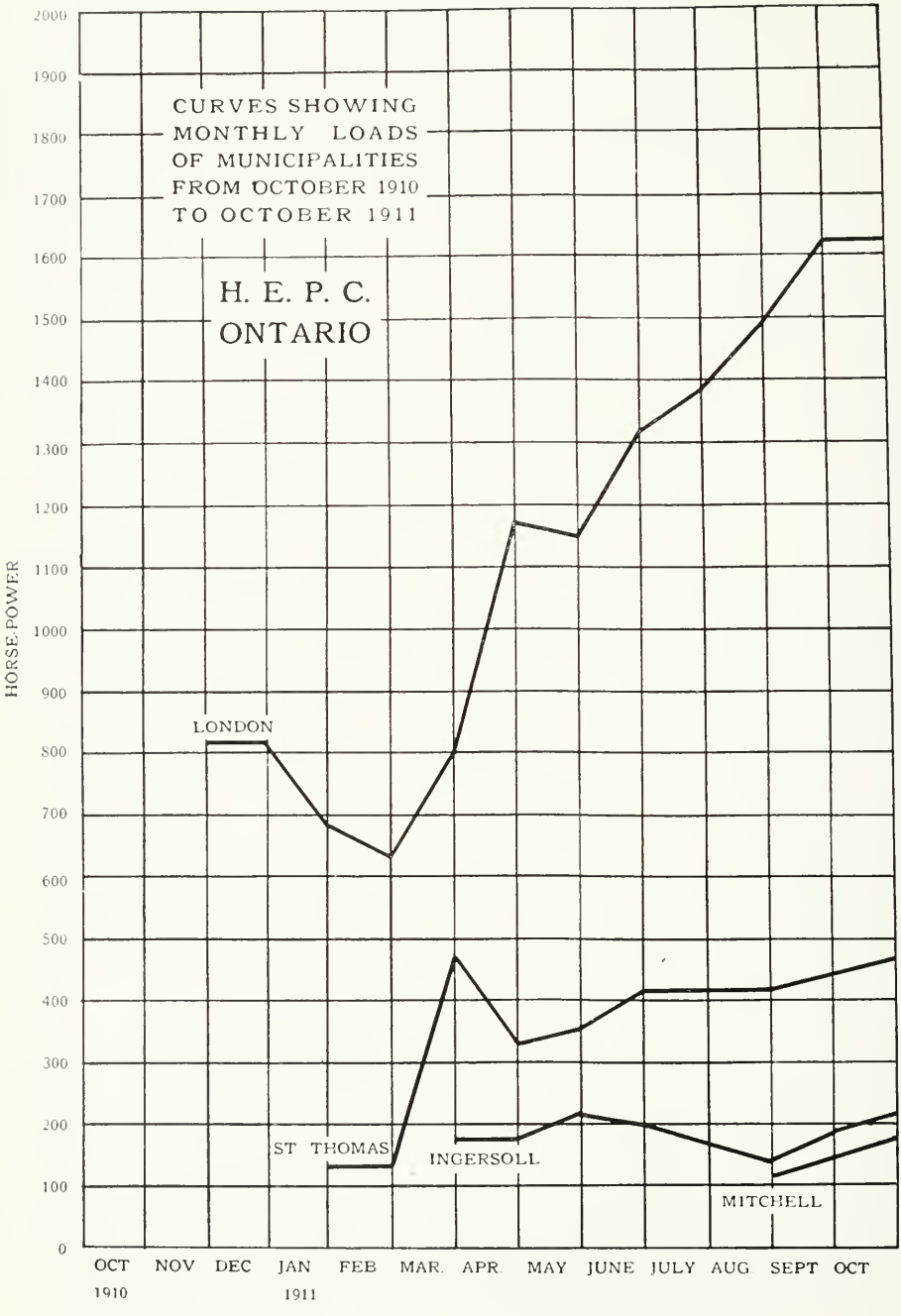


CHART SHOWING POWER CONSUMED BY MUNICIPALITIES.



The voltage regulation of the high tension system from no load to full load at the present time is less than 2 per cent., even when feeding the greatest distance around the loop. For instance, when the section of line between Dundas and Guelph is not in use the energy supplied at such times to the municipalities of Stratford, Berlin, Preston and Guelph must pass through Woodstock and London.

Although the regulation on the high tension system has been very good, a number of the municipalities have been inconvenienced by low voltage at times of the greatest loads because of the drop in their secondary circuits, which were not of sufficient size to provide for these loads. For this reason it has been necessary to supply several of the municipalities at voltages 5 per cent. higher than normal by means of extra voltage taps on the step-down transformers in the Commission's sub-stations.

The actual operation of the system was attended with certain difficulties at the beginning, as is to be expected with all large undertakings of this kind. A number of interruptions were caused due to changes in the adjustments of the line cables and ground wires, particularly during the winter months when it was difficult to re-adjust the cables satisfactorily. This trouble was confined to two sections of the line, but since these have been carefully gone over, the interruptions resulting from wind-storms on the high tension lines have ceased, and very little trouble is anticipated from these causes in future.

During the summer of 1911, electrical storms were reported on fifty-five different days, eighteen of these were severe, and the balance light or moderate. The first lightning storm of the season occurred on March 11th, and the last on October 4th. The majority of these storms were more or less general in their extent, but it is interesting to note that the greatest number were reported from the vicinity of Port Credit, and the fewest from Stratford. They occurred with the greatest frequency during the periods from May 17th to May 31st, and July 5th to August 18th, when scarcely a day passed without a report of storm at or near one or more stations. The storms of greatest severity occurred near the beginning and end of the lightning season, although there were a few during the early part of June.

Six interruptions have been caused directly by lightning on the high tension system, but comparative results on the operation of other lines radiating from Niagara Falls show that our high tension lines can be considered as being practically immune to the effects of lightning. No exact data is obtainable relating to the actual number and extent of interruptions on the other systems, but it is believed that our high tension lines have been effected at the most, only about one-quarter as much during the season as any other system either on the Canadian or American side of the Niagara District.

It is also interesting to note that out of the 120,000 high voltage insulator sections on the line, not one has been broken from electrical causes since the beginning of operation, although a few sections were broken during the first few months by rifle bullets.

Although a comprehensive description of the telephone system which parallels to the high tension lines will be found in another part of this report, it might be well to mention the difficulties which attend its early operation and the manner in which these difficulties have been gradually over-come.

Because of the proximity of the telephone wires to the high tension transmission cables, large currents are induced in the telephone wires whenever a change occurs in the electrical conditions on the transmission circuits. The telephone

apparatus would be frequently destroyed if some provision were not made to lead these heavy currents to the ground. Difficulty was first experienced with the burning out of the fuses in series with the telephone instruments and the fusing of the heat coils which were later tried. The failure of these protecting fuses always occurred at times when the telephone circuits were most needed, and frequently necessitated the employment of the Bell service to conduct the ordinary switching operations at the various stations.

Another difficulty which was also encountered at this time was the fouling of the lightning arrester gaps, which were composed of two blocks of carbon separated by thin strips of mica. The discharges across the arrester gaps were sufficient to dislodge particles of carbon from the blocks and bridge across the air gap. The result was either a ground on one side of the line or a complete short-circuit. Small vacuum type arresters were then tried, but it was found that the induced currents were so heavy that the arresters would soon deteriorate and become useless. Bleeding coils submitted by one or two telephone manufacturers were also found inadequate. Finally, one of the Commission's engineers designed an entirely new protective equipment which has been found very satisfactory in handling these large circuits. A description of this equipment is given in another part of this report.

PORT ARTHUR SYSTEM

The City of Port Arthur is supplied with energy purchased from the Kaministiquia Power Company at 22,000 volts. A wooden pole line four miles long has been built to connect the transformer station in Port Arthur with the lines of the Company. Energy is received at the sub-station at the above voltage and "stepped down" to 2,200 volts for distribution in the city.

The transformer station was finished the middle of December 1910, and the first delivery of energy was made on December 21st. The amount of energy taken since the beginning of operation has varied from 1,500 to 2,000 h.p., but this amount is expected to increase at least 50 per cent. within a short time.

This energy is used for the operation of the street cars in Port Arthur, for public and domestic lighting, and also largely in the grain elevators.

CHAPTER V.

HYDRAULIC INVESTIGATIONS.

SUMMARY.

Fort Frances.

Acting in accordance with a resolution passed by the Council of the Town of Fort Frances under date of February 15, 1910, the Hydraulic Engineer of the Commission was sent to Fort Frances with instructions to investigate conditions in connection with the export of electric energy from the Canadian side of the Rainy River, and also to ascertain as nearly as possible the costs of electric energy as developed on the Canadian side of the River by the Ontario and Minnesota Power Company. The conditions existing at that time are set forth in Report No. 1, hereto appended.

The official history of the Ontario and Minnesota Power Company apparently begins in the year 1904, when, on the 17th February, a contract was entered into between E. W. Backus of Minneapolis, and Thos. W. Gibson, the latter representing the Department of Crown Lands of the Province of Ontario. Under the terms of this contract, all property, riparian and water rights necessary for the full development of the Canadian portion of the Alberton Falls were conveyed to E. W. Backus for a cash consideration of $5,000.00, and a covenant binding the said E. W. Backus to abide by certain conditions and restrictions designed to protect the interests of the Federal and Provincial Governments and the Municipality of Fort Frances.

In the following year, 1905, Mr. Backus again approached the Provincial Government, and without the knowledge or consent of the Municipality of Fort Frances, entered into a second contract under date January 9th, 1905, with the Hon. A. J. MacKay, representing the Department of Crown Lands of the Province of Ontario. These two contracts are identical, clause for clause, with the exception of Clauses 1 and 8. By virtue of Clause 1 in the 1905 agreement, a block of property forming part of the town site of the Municipality of Fort Frances, which was held by the Province, was conveyed to E. W. Backus. This was in addition to the property conveyed under agreement of 1904, and no additional compensation was asked. In Clause 8 of the 1904 agreement, it was stipulated that one-half of the total power capable of development should at all times be retained and reserved for use on the Canadian side. In Clause 8 of the 1905 agreement, it was stipulated that 4,000 h.p. only should be at all times retained and reserved for use on the Canadian side. It further stipulated that when the 4,000 h.p. reserved was in permanent use on the Canadian side, and additional power required should be provided if the same were not in permanent use on the American side of the River.

This 1905 contract was probably obtained by Mr. Backus in order to make better terms with the financial house of Peabody and Houghteling, of Chicago, to whom he assigned all rights held by virtue of this contract, for it was not

until the 13th January, 1905, that the Canadian Company was incorporated under the Ontario Companies Act, under the name of the Ontario and Minnesota Power Company.

During this said period Mr. Backus had acquired in fee simple, by virtue of warranty deed through United States Patents, all property, riparian and water rights necessary for the full development of the American portion of the Alberton Falls, and these rights were assigned in turn to a company called the Minnesota and Ontario Power Company incorporated under the law of the State Maine, with head office in the City of Portland, Maine.

During the same year the Canadian Company sought to strengthen its position by obtaining a Federal Charter. This it failed to secure but an enabling act, 4-5, Ed. VII. Chapter 139, was passed in its stead, by virtue of which the Company was granted power to develop the Canadian water power under certain conditions.

This Act stipulates in brief that : (1) power whenever developed shall be developed concurrently on the Canadian and American sides, respectively: (2) power used in Canada shall be developed in Canada: (3) the Company shall be under the jurisdiction of the Dominion Railway Board, and no power developed in Canada shall be diverted for use in the United States without an Order of the Board. The Board also has power to fix the time during which such diversion may continue, and if necessary to regulate the price for which power is to be sold.

An Act, Ontario Statutes 1906, Chap. 132, was assented to on May 14th, 1906, at the petition of the Town of Fort Frances, which purported to set aside the agreement entered into between E. W. Backus and Hon. A. G. MacKay, in January 9th, 1905. This Act stipulates that notwithstanding provisions to the contrary in the 1905 agreement above mentioned, certain conditions and restrictions as enumerated in the text of the Act are to be adhered to and observed by the developing company. These conditions and restrictions are substantially the same as those laid down in the Dominion Act of 1905, with the exception that the powers vested in the Dominion Railway Board under the Dominion Act, are in the Ontario Act vested in the Lieutenant-Governor-in-Council of Ontario.

Such was the condition of affairs when construction work was started. Plans were employed which had been prepared in accordance with the provisions of the Dominion Act of 1905, and the Provincial Act of 1906, and provided for two power houses of similar construction and equal dimensions with an equivalent number of power units identical in design and capacity.

Construction was continued under the original plans until the summer of 1908, when the agitation for Tariff Reform and the usual period of unrest preceding a presidential election caused a suspension of work, since the company feared an increase in the duty on pulp wood and other allied products as well as possible retaliatory measures by Canada.

During this period of inaction the idea was conceived of placing all the pulp and paper making machinery necessary for the operation of a 200 ton mill on the American side, and the necessary electrical equipment on the Canadian side, thus making the Company's manufactured products independent of the tariff as regards the American market. The idea was acted upon, with the result that the plant as at present installed, has on the American side six 2,250 h.p. wheels direct connected to pulp grinders, and on the Canadian side four 1,700 h.p. wheels connected to electric generators. The present installed wheel capacity is, therefore, 13,500 h.p. on the American and 6,800 h.p. on the Canadian side.

There is apparently no documentary evidence to show that the company was officially authorized to install the plant in the manner just described, and if such evidence does not exist, the company's action is plainly a direct violation of the Clauses 2 and 3 of the Dominion Act, and Clauses 1 and 2 of the Provincial Act, the meaning and interpretation of these Clauses being unmistakable.

In the meantime, work on the paper-mill on the American side was being carried to completion, and early in 1910 the plant was ready for operation. The company therefore, applied to the Federal and Provincial Governments for a license to export 6,000 electrical h.p. from the Canadian plant. The Dominion Railway Board, acting under Clause 5 of the Dominion Act of 1905, gave the necessary permission in Order No. 9,326 under date of January 18th, 1910, and under date June 11th, 1910, the necessary license No. 21 was issued by the Department of Inland Revenue. This license is revocable at will and permits the Company to export power during the year ending March 31st, 1911. After careful consideration the Lieutenant-Governor-in-Council acting under Clause 4 of the Provincial Act of 1906, issued a permit for the export of 6,000 h.p. Conditional upon receiving this permit the company entered into an agreement with the Minister of Lands and Mines under date June 2nd, 1910.

This agreement stipulates that the Government can revoke the export license at any time, and also that all matters relating to contracts, distribution, power costs, etc., be fixed from time to time, or when necessary, by the Hydro-Electric Power Commission of Ontario. The company is at the present time using Canadian power in the paper-mill on the American side under authority of the above mentioned permits.

The action of E. W. Backus with reference to 1905 agreement and subsequent acts of himself and his associates gave rise to a feeling of distrust and caused some anxiety as to the Company's motives among the people at Fort Frances. Matters came to a head when the Company quoted a price for energy which the Mayor and Council of Fort Frances considered exorbitant, and not in accordance with the terms of the 1904 agreement between E. W. Backus and the Commissioner of Crown Lands.

Negotiations finally reached a stage when Mr. Backus agreed to allow the Minister of Lands and Mines to set a price at which power was to be sold on the Canadian side. A resolution was also forwarded to the Hydro-Electric Commission by the Mayor and Council of Fort Frances asking that an investigation be made with the view of establishing a fair rate for power.

Acting under the conditions of the agreement of June 2nd, 1910, the Consulting Engineers of the Commission were instructed to procure the necessary facts and data and prepare a report dealing with the cost of power on the Canadian side.

For this purpose two engineers were sent to Fort Frances with instructions to obtain from the Power Company such costs, data and other materials as might be necessary for the preparation for the complete report. Sufficient information and data was obtained to enable the consulting engineers of the Commission to prepare their report, which is appended hereto. (See Report No. 2.)

Thessalon.

The Municipality of Thessalon applied to the Commission in March, 1910, for information in connection with the development of power on the Thessalon River for municipal and industrial purposes. This matter is dealt with in Report No. 3, hereto appended.

Wingham.

In May, 1910, a resolution of the Council of the Town of Wingham was forwarded to the Commission requesting that a survey be made of a water-power about five miles from the town, together with a report on available capacity and cost of development. Surveys were made and plans forwarded to the Clerk of the municipality, but owing to the lack of hydraulic data, no estimates of capacity or development cost could be made at the time. Periodic measurements of discharge, however, have since been made which will enable the report to be completed in the near future.

Mississippi Storage.

In March, 1910, the power users on the Mississippi obtained legislative consent to the formation of a limited company called the Mississippi River Improvement Company, for the purpose of building storage dams in the upper watershed to regulate the flow for power purposes. The enabling act stipulated, among other things, that the location and construction of storage dams was subject to the approval and consent of the Hydro-Electric Power Commission. In September, 1910, the company submitted plans for the construction of the dams at Gull and Long Lakes, which were approved. (See Report No. 4.)

Pursuant of the Commission's approval, contracts for the construction of these dams were let, and in October, 1910, work was commenced at Long Lake. (See Report No. 5.)

The Long Lake dam was completed before winter set in, and the Gull Lake dam was completed the following spring. Since then no further construction has been attempted.

Renfrew.

In the fall of 1910, the flow of Bonnechere River reached such a low stage that most of the industries in the town of Renfrew suffered severely owing to the shortage of hydro-electric power. Upon application by the town a report was submitted in which it was recommended that low water conditions be relieved by means of artificial storage, and approximate figures were supplied to show the extent to which the Bonnechere River would benefit from such storage, with special reference to the storage possibilities of Round Lake and Golden Lake. (See Report No. 6.)

In February and March, 1911, a detailed survey was made of Round Lake to determine the maximum amount of storage which it was capable of providing, and the extent of land damages. A site for a storage dam was also selected, carefully cross-sectioned, and bed-rock was located by means of test pits. A detailed report (see Report No. 7) was then prepared giving the probable cost of dam construction and the land damages, and also outlining a general scheme for the complete development of the storage possibilities of the Bonnechere watershed.

Simcoe Railway and Power Co.

In September, 1909, this company secured a Crown lease covering the development of power at the Big Chute on the Severn River to the full capacity of the site, the primary object being to transmit power at 25,000 volts to the Towns of Midland and Penetanguishene. In November, 1910, when the works were approaching completion, an inspection of the same was ordered by the Commission. (See Report No. 8.) The Towns of Midland and Penetanguishene at this time made

application to the Commission for a supply of power, and as the plant of the Simcoe Railway and Power Company was the best available source of supply, the Commission opened negotiations with the company with a view to obtaining a contract for power. Using the actual cost records of the company as a basis, estimates were prepared showing the capital cost of the present partial development, and the probable cost of development for full capacity. Based on these costs, estimates were prepared showing the annual cost of various quantities of high tension and low tension power delivered at Midland. The contract between the Commission and the Power Company was based on these costs and signed in February, 1911. Since July, 1911, the Commission has been supplying power to the Towns of Midland and Penetanguishene under this contract. A copy of the contract will be found in that portion of this report dealing with municipal contracts.

Lindsay Light, Heat and Power Co.

In January, 1911, certain circumstances arose which led the Power Company to make an offer to sell their generating plant and transmission system to the Town of Lindsay for $250,000. Acting by request on behalf of the Town, the Commission obtained an option on the property for $230,000, and submitted a report on the plant as well as a report dealing with the proposed purchase by the municipality. (See Report No. 9.)

Peterboro.

In January, 1911, the Industrial Commission of Peterboro obtained from the Otonabee Power Company an offer to sell their plant to the City for $225,000, and the Commission was asked to advise the town as to the feasibility of taking over the plant at this price and supplying cheap light, heat and power to the city. The question was carefully investigated and the conclusions arrived at are set forth in Report No. 10, hereto appended. In this Report, the general power situation in the City of Peterboro' is discussed, as is also the feasibility of a project on the part of the city to purchase or otherwise acquire control of all the water-power on the Otonabee River between Nassau and Lakefield.

Lakefield.

The Village of Lakefield applied to the Commission for estimates on the cost of 400 h.p. delivered in the village in January, 1911. It was considered that this problem had best be taken up in conjunction with the project of the City of Peterboro' to acquire control of the water-powers on the Otonabee River between Nassau and Lakefield, as the Village of Lakefield could obtain cheaper power under this scheme than it could from independent purchase or development. (See Report No. 11.)

Erindale Power Co.

The Erindale Power Co., having made application to the Commission for a supply of such power as they would require over and above that which they developed themselves on the Credit River at Erindale, the chief engineer of the Commission was instructed in January, 1911, to examine the plant and report on the same, with special reference to its hydraulic capacity. (See Report No. 12 hereto appended.)

Dog Lake Storage Dams.

In March, 1911, the Ontario Department of Public Works which had charge of the construction of the Dog Lake storage dams, received notification from the contractor that he had completed the work called for in his contract. The engineer of the Department of Public Works was sent up to Dog Lake to inspect the work, and the chief assistant engineer of the Commission, who was in Port Arthur at the time, was instructed to accompany him and report on the work to the Commission. (See Report No. 13 hereto appended.)

The Commission's Hydraulic Engineer visited the dams in June, 1911, to ascertain the best means of obtaining records of water level and sluice openings for the purpose of compiling hydraulic data relative to the Dog Lake watershed. As a result of his investigations, the permission of the Ontario Department of Lands, Forests and Mines was obtained to employ one of the Department's fire-rangers to keep records at the dams, and in July an engineer of the Commission went up to Dog Lake to set the necessary guages and give the fire-ranger all necessary instructions in the matter of keeping records. He also went up to the head of the lake to the mouth of the Dog River, where it was reported that an Indian Village was in danger of being flooded by the rising water. His report, No. 14 hereto appended, also mentions the fact that the gate-rod on one of the sluices had buckled, allowing one of the gates to be forced open. This was reported to the Department of the Public Works, and steps were taken by the Department to have the defect remedied.

The Dog Lake storage dams were built for the purpose of regulating the flow from Dog Lake, which has an area of 53 square miles, in such a way as to ultimately provide as nearly as possible a uniform rate of flow for power purposes in the Kaministiquia River.

At the present time the Kaministiquia Power Co., of Fort William, is the only organization to benefit from this regulation, and this company has been allowed, temporarily, to supervise the opening and closing of the regulating gates.

Waddington.

The Commission entered into a contract in April, 1911, with the New York and Ontario Power Company, covering the supply of power for the eastern municipalities up to a maximum of 15,000 h.p., which is to be supplied from a projected development in the Village of Waddington, situated on the American side of the St. Lawrence River, opposite the Town of Morrisburg. Report No. 15, hereto appended, deals with the physical characteristics of the power site and discusses the projected scheme of development from the standpoint of reliable and continuous service.

Maitland River.

In April, 1911, the officials of the County Council of Huron proposed that the County acquire the rights of the Maitland River Power Co., and develop power on the Maitland River, on condition that the Commission would purchase the power thus developed and distribute the same to the various municipalities throughout the County of Huron, and at seasons of the year when the Maitland Power was inadequate to meet market requirements, to make good the shortage by means of power supplied from the Niagara Distribution System. In this way it would be possible to distribute Maitland generated power throughout the district for the greater portion of the year, and use the Niagara System as an auxiliary

during periods of low-water flow. The principle of the scheme commended itself to the members of the Commission, and the chief engineer was instructed to investigate the matter thoroughly and report at the earliest possible date. Due to the lack of available data with reference to the flow characteristics of the Maitland River, it was impossible to prepare a final report at that time, but Report No. 16, hereto appended, was submitted with the object of indicating in a general way how the scheme might be handled.

Steps were taken in the meantime to investigate the flow characteristics of the river, and since May, 1911, monthly measurements of flow have been made and daily records of water-level kept. This work is still under way and will be continued at least until after the spring flood of 1912. With the data which will then be available, it will be possible to prepare a fairly authentic report on the economic feasibility of the scheme.

"Mohr's Chute," Chats Falls, Ottawa River.

Beaver River.

The Beaver River is to the County of Grey what the Maitland River is to the County of Huron, namely, the nearest and cheapest source of hydro-electric energy. Anticipating that in the near future, Owen Sound, Collingwood, and other Georgian Bay towns would require power, instructions were given for the preparation of a report dealing with the possibility of supplying these towns with locally generated hydro-electric energy.

A possible source of power was, therefore, ascertained to be Eugenia Falls on the Beaver River, which is at present owned by the Georgian Bay Power Co. This property was examined and through the courtesy of the company's secretary, the Commission's engineer had access to all cost estimates and weir records in the possession of the company.

With this information available, a preliminary report was prepared dealing with the power capacity of the site, the storage possibilities and development costs. (See Report No. 18 hereto appended.)

Orillia.

A series of accidents and the inefficient operation of their municipality owned power system threatened the Town of Orillia with a serious power-famine during the fall and winter of 1911. The town made application to the Commission in April, 1911, for assistance, and a report was prepared describing existing conditions and making recommendations as to the possible remedy, the whole being set forth in Report No. 19, hereto appended.

Englehart.

The municipality of Englehart, by resolution of the Council, asked the Commission in March, 1911, to report on the possibility of developing a water-power on the Blanche River for municipal purposes, giving estimates of capital and annual costs. A request was also made for a report on a proposed agreement between the town and a party wishing to acquire an exclusive franchise for the sale of light, heat and power in the municipality. (See Report No. 20, hereto appended.)

Department of Agriculture.

Acting on the request of the Ontario Department of Agriculture, an examination was made of a small water-power on the Driftwood River, the object being to ascertain if it could be economically developed for the use of the Government experimental farm at Monteith, to which the power site is adjacent. Report No. 21, hereto appended, covers the power capacity of the site and an approximate estimate of the capital cost of development, and the annual cost of power.

Brampton.

The Town of Brampton applied to the Commission in May, 1911, for an estimated valuation of the plant and system of the Brampton Electric Light Co., which was to be used as a basis of purchase by the town.

Huntsville.

The Town of Huntsville, through the Minister of Lands, Forests and Mines, applied for information as to the probable cost of power delivered in Huntsville from the Gravenhurst Municipal Plant at South Falls on the Muskoka River, in May, 1911.

Investigations by engineers of the Commission resulted in the preparation of a Report, No. 23 hereto appended, which recommends High Falls on the north branch of the Muskoka River as the source of power best suited for the immediate requirements for the Town of Huntsville, and also outlines a scheme for the future tying-in and consolidation of all the power sites on both branches of the Muskoka River capable of economic development.

Almonte.

The Town of Almonte requested an investigation in May, 1911, of its power situation, with a view of ascertaining the cost of developing the total head on the south branch of the Mississippi River, and the best means of consolidating the

various interests operating thereon in such a way as to make possible the development of the total head by the municipality. These matters are set forth in Report No. 24, hereto appended, as is also a description of the peculiar condition which exists as regards the division of water between the north and south branches of the Mississippi River within the corporation limits of the municipality.

Chesley.

In accordance with a resolution passed by the town council, the Commission's hydraulic engineer visited Chesley in June, 1911, to investigate the feasibility of a projected scheme to develop power on the north branch of the Saugeen River for the use of the municipality. Owing to lack of hydraulic data, it was not possible to prepare a reliable estimate of power capacity or cost of power. Since June, however, regular measurements of flow have been made and a fairly reliable report can be submitted when the high and low water conditions during the present summer and the coming winter have been ascertained.

Lindsay.

The Town of Lindsay requested the Commission in July, 1911, to investigate the possibility of developing the water-power on the Gull River at Minden, with a view to utilizing it at some future time as a source for an auxiliary supply to the town. The site was examined by an Engineer of the Commission, and a careful contour survey made. Discharge measurements will also be taken during the coming winter, since a proper estimate of cost and capacity cannot be prepared until the conditions of winter flow have been ascertained. A power-site on the Black River was also investigated, but the small volume of flow and the transmission distance precluded the possibility of using it as an economical source of auxiliary supply for the town.

Ottawa.

The Commission's Hydraulic Engineer spent two weeks during July, 1911, in Ottawa and the surrounding territory collecting data and information in connection with various water-powers which could be economically developed to supply the needs of the Municipality of Ottawa and recommending a site for the city to acquire if considered advisable. A report, based on the information obtained, is being prepared at the present time.

Eastern Power District.

Considerable attention has for several months past been given to the question of deciding upon a suitable source of power for the eastern municipalities, and at present the choice lies between High Falls, on the Madawaska, and the Waddington site on the St. Lawrence, previously referred to. An engineer of the Commission was also sent in July, 1911, to investigate the power possibilities of the Rideau watershed, but the information obtained indicated that there were no power sites in the Rideau district of sufficient magnitude to be used as a continuous source of power for the Eastern Municipalities. (See Report No. 25, hereto appended).

Hydraulic Surveys.

During the past year surveys have been made in connection with the following rivers: Bonnechere, Maitland, Saugeen, Gull and Sable.

The Bonnechere storage survey was made in February and March, 1911, and undertaken for the purpose of ascertaining to what extent the flow characteristics of the Bonnechere River could be improved by artificial storage. During the six weeks the party worked a complete survey of Round Lake and a partial survey of Golden Lake was made, and dam-sites at the foot of each lake were located, cross-sectioned and tested for rock. Altogether about thirty miles of line was run and flood contours established. The contour work was very difficult at times owing to deep snow and thick timber and undergrowth.

The Maitland River survey was undertaken for the purpose of checking the plans furnished by the Maitland River Power Co., in connection with the purchase scheme suggested by the County Council of Huron, previously mentioned in this report. Levels were run about four miles up the river from the proposed site of the dam, and the extent of back-water and the flood contours were found to check satisfactorily with the plans furnished by the Company.

Anticipating the possibility of power development on the Saugeen River by the County of Bruce, the river was examined for the purpose of locating a favorable site for development. It was found that the development of sixty foot head was possible in the vicinity of Port Elgin, and a survey was made of the site with all necessary levels and cross-sections. The flow of the river has been measured periodically during the summer, and measurements will be continued during the winter.

In connection with the proposed scheme of development at Minden, on the Gull River, a detailed contour survey was made to ascertain the maximum head obtainable and determine possible land damage and cost of construction. As previously mentioned, the working out of this scheme is being held over until some data has been obtained relative to the winter flow of the river.

The town of Wiarton, having made application to the Commission for a supply of power, the watershed of the Sable River was examined for the purpose of ascertaining whether sufficient power could be developed at Sable Falls, with the help of storage, to meet the requirements of the town. All lakes in the water-shed were visited, and their outlets examined for the purpose of locating sites for storage dams. It was found that while the lakes had considerable storage capacity, the ultimate power capacity was small owing to the restricted area of water-shed.

Relative to the project to construct a hydraulic accumulator plant at Dundas, a survey was made for the purpose of laying out a reservoir system and locating a power house and pipe lines. The site selected was carefully surveyed and cross-sectioned, and plans prepared were taken to Europe by the chief engineer to lay before continental experts.

James Bay Watershed.

Since June, 1911, an engineer of the Commission has been engaged in making a reconnaissance survey of the principal rivers of Ontario flowing into James Bay. Up to the present time he has worked on the Abitibi, Mettagami and Missinaibi Rivers, and the work will be continued during the coming winter. Discharge measurements are being made on all rivers as frequently as possible, and all important power sites are being surveyed. Various locations already being developed or about to be developed are also being examined and reported upon in detail. When sufficient information has been collected, a special report covering the James Bay water-shed will be prepared.

REPORT NO. 1.

Fort Frances.

As per instructions, the Commission's hydraulic engineer visited Fort Frances last week, to investigate the power question relating to the Minnesota and Ontario Power Company and the Town of Fort Frances.

On arriving it was found that there was no need for an estimate on the cost of distribution as the town already has its municipal system built and operating, debentures for $10,000.00 having been issued to cover the expense. This system is employed for arc and residential lighting only, since there is no power load at the present time.

The scope of the investigation was, therefore, covered by the following items:—

(1) To obtain from the power company or determine by other means a definite price for which power could be sold to consumers on the Canadian side, said price to be published by the Town of Fort Frances as an inducement for the establishment of industries.

(2) Whether or not the Power Company be allowed to export power from the Canadian side.

(3) Reasons for prohibiting export of power.

(4) Conditions under which export might be allowed.

Cost of Power.

Due to the difficulty experienced in procuring actual costs from the company, the price of power can only be estimated from such general figures as were obtainable.

In August, 1908, J. S. White & Co., of New York, made a report on the Industrial Development at Fort Frances, which contains estimates on several proposed schemes of development. Plan "B" of this report is the one now under construction and entails the completion of permanent works for full capacity and the installation of sufficient hydraulic, electrical, paper-making and pulp grinding machinery to equip a plant with a daily paper output capacity of 200 tons. This plant is estimated to require 15,000 h.p. Taking the White Co. figures, the capital cost of permanent works for full capacity (36,000 h.p.) and power-house and equipment for 18,000 h.p., would be covered by the following items:—

Value of work completed to August, 1908	$750,000
Completing dam and buildings for hydraulic plant	521,000
Hydro-Electric equipment for 45,000 kw.	79,500
Hydraulic equipment for pulp-mill	125,000
Total	$1,475,500

In the above estimate are included three 2,200 h.p. wheels connected to generators, and six 2,200 h.p. wheels connected to pulp-grinders.

Annual charge on above investment would be approximately as follows:—

Annual interest, 6 per cent.	$88,500
Sinking Fund (30 years), 1.8 per cent.	26,500
Annual repairs, 2 per cent. on permanent works	25,420
Annual repairs, 5 per cent. on equipment	10,225
Operation	9,000
Administration	15,000
Total	$174,645

Average cost per h.p. per year of mechanical and electrical power on basis of 18,000 h.p. installed capacity, $9.70.

It appears from another portion of the report that 4,500 kw. electrical capacity is sufficient for a 400 ton mill, so that 2,300 kw. should be sufficient for the present projected capacity. There would, therefore, be a surplus of 2,200 kw. available for independent use, which could be sold at the switchboard for $9.70 without loss.

In plan "D" of the same report is an estimate covering the cost of a complete hydo-electric development for the full capacity of the site.

The title of this estimate is significant, reading as follows:—"Cost to complete the development providing for all the power (Canadian and American) to be used for generating electricity and *transmitting it to the mining district of Minnesota.*"

Using this estimate the capital cost of a hydro-electric plant of 32,000 h.p. capacity would be covered by the following items:

Value of work completed to August, 1908	$750,000
Completing dam and buildings for plant	650,000
Hydro-Electric equipment	571,500
Contingencies	40,000
Total	$2,011,500

Annual Charges.

Annual interest, 6 per cent.	$120,700
Sinking Fund, 1.8 per cent.	36,200
Annual repairs, 2 per cent. on permanent works	28 000
Annual repairs, 5 per cent. on equipment	28 575
Operation	18,000
Administration	20,000
Total	$251,475

Cost per h.p. per year on basis of 32,000 h.p., $7.83.

From the above figures it will be seen that according to the White Co.'s estimates, the capital cost per h.p. for the present scheme, namely, permanent works for 36,000 h.p. capacity and initial installed capacity of 18,000 h.p. is $82. Also, according to the White Co.'s estimates, the capital cost per h.p. for a Hydro-Electric plant of 32,000 capacity would be $62.50.

While every hydraulic development is a law unto itself as regards capital costs and annual charges, it may be said as a general rule that only under unusually favorable conditions is the capital cost for development brought below $50 per h.p. For ordinary sites and for average blocks of power $75 per h.p. is a very reasonable figure, and $100 per h.p. is well within economic limits.

The power site at Koochiching Falls presents no outstanding features, favorable or otherwise, from the development standpoint, and the capital cost of the plant at present installed might very reasonably be put at $75 per h.p. When the full capacity of the site is developed the capital cost per h.p. should not fall below $60, and will probably run about this when the storage works are completed. This being the case, an analysis of actual costs should demonstrate the company's ability to sell power profitably in Fort Frances at $12 per h.p. per year at the switchboard under present conditions, and this price would become less as the installation approached the ultimate capacity of the site.

It is probable that considerable sums have been expended on promotion, commissions, salaries, engineering and bond flotation, which have been charged to development on the company's books, and would materially increase the cost of power. Whether or not these sums are properly apportioned is a matter requiring investigation. To arrive at the real value of the hydraulic and hydro-electric plant, and subsequently the real cost of power, an examination of the company's books would be necessary. This would appear to be the only definite solution of the question bearing on the cost of power.

As compared with the above estimated cost at Fort Frances it is interesting to note similar costs which are derived from the actual capital cost figures in connection with the Kenora Municipal Plant. These costs are as follows:—

Capital Cost per h.p. at switchboard on basis of 2,700 h.p. capacity at present installed, exclusive of arbitration award	$133 00
Capital Cost per h.p. at switchboard, on basis of 5,400 h.p. ultimate installed capacity, exclusive of arbitration award	82 00
Capital Cost per h.p. for 2,700 h.p. capacity, based on annual charges for 1909	12 80
Annual Cost per h.p. in future for 2,700 h.p. capacity, allowing additional fixed charges on arbitration award	15 60
Annual Cost per h.p. for 5,400 h.p. ultimate capacity, including fixed charges on arbitration award and charges on additional plant	9 65

The above annual costs include operating but no administration charges nor incidental annual repairs, since none of the latter have been necessary during the short period of operation.

Leaving out the capital and annual charges resulting from the arbitration award, the corresponding costs for each scheme, using the White Co.'s estimates, are as follows:—

Capital Cost per h.p. for half capacity:	
Fort Frances	$82 00
Kenora	133 00
Capital Cost per h.p. for full capacity:	
Fort Frances	62 50
Kenora	82 00
Annual Cost per h.p. for half capacity:	
Fort Frances	9 70
Kenora	12 80
Annual Cost per h.p. for full capacity:	
Fort Frances	7 83
Kenora	9 65

It is evident that the Fort Frances costs are less in every case, which is reasonable because, while other conditions are similar, the average head at Fort Frances is 12 feet greater than that at Kenora.

Present Conditions.

At the present time the sub-structure and super-structure of the Canadian Power House is complete for 9 units. The present installation consists of four, four-runner Holyoke Machine Co. turbines connected to four three phase, 60 cycle, 6,600 volt, 1,250 K.V.A. generators. This plant furnishes energy for street and residential lighting to the towns on both sides of the river, and also supplies power for the motors used for construction machinery. One generator only is operating at present and that under very light load.

The sub-structure and super-structure of the American Power House is complete for 6 units. The installation consists of six four-runner Morgan-Smith

wheels, about 2,000 h.p. rating, each unit being connected to four pulp grinders. A temporary bulk-head has been placed at the shore end of this power house, beyond which is space sufficient to accomodate three more turbine settings and the necessary addition to the power house. None of the wheels in the American Power House are yet in operation. The dam, spillway and sluice construction is complete.

The placing of all the electrical equipment in the Canadian Power House, and all the pulp machinery in the American Power House, gave rise to a feeling of distrust and caused some anxiety as to the Company's motives among the people of Fort Frances. Upon being questioned, the Company's alleged reason for this arrangement, was explained by Mr. E. W. Backus personally, and was substantially as follows:—

It was the original intention of the Company to install fourteen 700 h.p. units in each power house, and the work was begun on this basis and progressed until the summer of 1908. The agitation for Tariff Reform, and the usual period of unrest preceding a presidential election, caused a suspension of the work at that time, as the Company feared an increase in the duty of pulp wood and allied products and the possibility of retaliatory measures by Canada.

During this period of inaction, Mr. Backus conceived the idea which has since materialized; namely, the placing of all the pulp and paper-making machinery required for a 200 ton mill on the American side, and placing the necessary electrical equipment on the Canadian side, thus making the Company's manufactured output independent of the tariff as regards the American market. Mr. Backus obtained the consent of the bond holder's trustee in Chicago, and also alleges that he obtained the permission of the Ontario Minister of Lands and Mines for the installation of the four generators now placed on the Canadian side.

As stated above, there is room to install three more units in the extension of the American Power House, and Mr. Backus states positively *that three electrical units of the same capacity as those at present installed in the Canadian Power House are sufficient to supply all the electric energy necessary for the operation of the ultimate* 400 *ton mill.* The installation of these three units would, therefore, be more than sufficient to make the industry on the American side entirely independent of the Canadian plant. Also, two of the electrical units at present installed on the Canadian side would be ample to supply the requirements of a 200 ton mill, so that the output of the other two units will be available for general power purposes.

Export of Power.

The rights of the Province in this connection appear to be safeguarded by the Dominion Act of 1905, and the Ontario Act of 1906, and it is simply a question of enforcement.

In the matter of prohibiting the export of power it may be mentioned that the Company has not complied with Clause 2 of the Dominion and Clause 1 of the Ontario Act, which calls for concurrent development on both sides of the river, so that at no time will there be more power available for use on the American side than on the Canadian side. At present the installed turbine capacity on the American side exceeds that on the Canadian side by 4,000 h.p. Clause 1 of the Ontario Act provides that this measure may be modified at the discretion of the Lieutenant Governor in Council, but there is no evidence that such formal consent has been obtained. This evasion of the Acts might call for corrective measures. Also, if any large amount of power were exported, the industry or industries which

it supported might be very seriously influenced when the time came to use the power on the Canadian side, so that it would appear more reasonable to establish these industries on the Canadian side at the outset. This may be put in the form of a general statement that Canadian power should not be exported to build up American industries at the expense of Canadian industries.

If the responsibility of promoting the industrial activity of the Town of Fort Frances is to be borne by the Minnesota and Ontario Power Co., the proper course would be to prohibit the export of power, if the Acts allow it, and at the same time rigidly enforce the other conditions set forth in the Dominion and Ontario Acts.

On the other hand, if the Town of Fort Frances is to be made responsible for its own industrial welfare with no direct assistance from the Company, the Government could allow the temporary export of power under certain conditions. The prime condition would be the setting of a definite price for power which the Town could advertise as an inducement for the establishing of industries. The second condition would be to set a limit to the amount of power to be temporarily exported. Under present conditions the amount should be limited to 6,000 h.p. for a reason presently to be stated. The third condition should provide that the work in connection with the development of the storage system be proceeded with at once and completed. Also various conditions of a legal nature should be imposed to make the main conditions binding and operative.

Storage.

As previously stated, the present scheme of development calls for 18,000 h.p. installed turbine capacity in each power house, making 36,000 h.p. installed in all.

Under present normal conditions there is sufficient water in the Rainy River to develop 36,000 h.p. at Koochiching Falls, but at low water periods the capacity of site drops to less than 15,000 h.p. It is evident, therefore, that with 18,000 h.p. installed, enough water could be drawn through the wheels in the American plant to completely shut down the Canadian plant, during the period of minimum flow. Then even though no electric power were being exported, all the Canadian water would be diverted to the American side, which would be the same in effect, as it would practically mean the export of hydraulic power instead of electrical.

It is estimated that the projected storage works will equalize the flow to such an extent as to provide 36,000 h.p. continuously. This being the case it would be possible for the American plant to develop full rating without causing the diversion of Canadian water. As the wheels at present installed in the American plant can at times, under present conditions, divert practically all the Canadian water, it is evident that the Company should be required to complete the storage works, in any case before any more hydraulic machinery is installed on the American side.

Conclusion.

In view of the various facts above stated, it would appear that two causes of action are open; first, to prohibit the export of power altogether and thus throw on the Company the responsibility of building up industries on the Canadian side, these industries either to be controlled by themselves or to be simply independent power customers. The second course would be to allow the export of power on condition that a price be set at which the power can be sold on the Canadian side up to the capacity of the Canadian plant, and that the storage works be completed forthwith, and that not more than 6,000 h.p. be exported. The limit is set at 6,000 h.p. because this is the amount of reserved capacity in the American plant. In the event of all or any part of this power being required on the Canadian side, the

Company can, upon sufficient notice, install such portion of the reserve as will compensate for the power reclaimed for use on the Canadian side.

It may be said in conclusion that whatever course is adopted, steps should be taken to determine a fair selling price for the Canadian power, as the people of Fort Frances feel that there is urgent need for independent action on their part in matters relating to the promotion of industry.

March 23rd, 1911.

REPORT NO. 2.

Fort Frances.

Pursuant to verbal instructions, we investigated the question of the cost of power as developed by the Minnesota and Ontario Power Company, at Fort Frances, and made the necessary examinations of the plant to determine its cost and the amount of power available.

We were advised that we would receive the necessary information from the Company to enable us to determine their actual capital expenditure. Although we applied for it repeatedly, this information was not supplied, and we were forced to adopt other means to ascertain these figures.

In addition to the information secured regarding the physical equipment, our Engineers determined at the time of their visit the amount of water passing down the river.

With this information in hand we are able to report as instructed, notwithstanding our failure to obtain directly from the Company the information promised.

We also familiarized ourselves thoroughly with the history of the Company, its relation to Canadian interests, and the power granted both by the Ontario and Dominion Governments, so that the whole question has been studied in all its aspects, from its inception to the present.

Available Water.

Complete records of the hydraulic conditions of the Rainy River do not exist. Various measurements of the river flow have been made at different times however, which yield a certain amount of information.

On September 27th, 1910, we measured the flow of the river and found it to be 5,229 second feet, and although this measurement appears to show the minimum flow of the river, it is very probable that in the month of February the flow would be less.

The drainage area consists of about 14,500 square miles of which about 10,500 square miles are in Canadian territory. A large proportion of lake area is included in this drainage basin. About 370 and possibly 400 square miles of this lake area can be used for direct storage purposes above the present power development. This water level may be raised at least five or six feet, and a large quantity of water stored and employed to equalize the flow, increasing the minimum flow very materially.

It is impossible to store and utilize all of the water that reaches the Lakes, and as a result a considerable quantity will necessarily waste itself each spring.

The Rainy River is also being used for lumbering and a log slide which would require a considerable quantity of water for its operation would necessarily have to be built.

After carefully considering the drainage area and the river discharge, from the information at hand we have come to the conclusion that the dependable flow cannot be considered greater than 10,500 second feet. The working head when the works are completed may be assumed as 30 feet, but this figure may vary two or three feet either way.

We, therefore, consider that the potentiality of the river does not warrant the installation of more than 28,000 water wheel horse-power.

During future years of operation of the plant, it may be found that the dependable power will be greater or less than the figures just given, but we believe

that for present consideration, and as a definite working basis, these figures are fair, and with our present knowledge of the river it would be unwise to make other assumptions.

The Rainy River is an International Boundary River, and the interests of the two countries are, therefore, equal. This was apparently recognized when the plans were prepared for the power development. The dam and regulating gates are common to the power houses, and the power houses on each side of the river are practically identical in their general lay-out, that is, they are laid out to eventually contain nine power units.

We might draw your attention to the fact that the power units installed on the American side have a greater unit capacity than those installed on the Canadian side, and that at present there are six units installed on the American side and only four on the Canadian side, and if the remaining spaces are supplied with power units of the same capacity as those already installed, the power capacity of the American power house will be 30 per cent. greater than the capacity of the Canadian plant when fully completed with units of the capacity now installed there. This fact, alone, would indicate that the Company has departed from the equal division of power principle between the two countries.

The general plan of the development you are already familiar with, and all that we can say, as a result of our inspection, is that the work has been constructed in a substantial manner.

At present the installations consist of the following:—

In the American power house six units of 2,200 water wheel horse-power are at present installed and direct connected to wood pulp grinders. There is available space for three more similar units.

On the Canadian side four units of about 1,700 wheel horse-power have been installed and coupled to electrical generators of 1,250 kw. capacity each. There is sufficient room remaining for five additional units.

With the exception of about 130 kw. the whole of the present electrical output of the Canadian power house is transmitted to the American side of the river.

Capital and Operating Costs.

The capital and operating costs have been determined and arranged under the four following heads:—

(1) The Capital and Operating Costs of the total present Canadian and American Hydraulic Plants, up to the wheel coupling:

Cash Cost	$1,132,015 00
Capital Cost (bonds sold at 80)	1,415,018 00
Operating Costs and Fixed Charges	121,556 00
Cost per h.p., year, based on 20,300 h.p. output	5 98

(2) The Capital and Operating Costs of the Canadian Electrical Equipment as at present installed:

Cash Cost	$101,000 00
Capital Cost (bonds sold at 80)	126,250 00
Operating Costs and Fixed Charges	19,975 00
Cost per h.p., year, based on 6,400 h.p. output	3 12

(3) The Capital and Operating Costs of the probable full commercial hydraulic development, Canadian and American, up to the wheel coupling:

Cash Cost	$1,249,598 00
Capital Cost (bonds sold at 80)	1,562,000 00
Operating Costs and Fixed Charges	140,143 00
Cost per h.p., year, based on 28,000 h.p. output	5 00

(4) The Capital and Operating Cost of sufficient Electrical Equipment in the Canadian Plant to utilize one-half of the commercial potentiality of the whole river:

Cash Cost	$222,200 00
Capital Cost (bonds sold at 80)	277,750 00
Operating and Fixed Charges	40,065 00
Cost per h.p., year, based on 13,150 h.p. output	3 05

Yearly Cost of Power.

From these figures the costs per horse-power year under various conditions are as follows:—

(1) Hydraulic Power at the wheel couplings under present conditions..	$6 00
(2) Hydraulic Power at the wheel couplings, under full development conditions	5 00
(3) Electrical Energy at the Canadian switchboard, present conditions.	9 10
(4) Electrical Energy at the Canadian switchboard, under full development conditions	8.05

November 11th, 1910.

REPORT NO. 3.

Thessalon.

Acting under instructions, the Commission's Hydraulic Engineer visited Thessalon on March 19th and 20th, and succeeded in convincing the Mayor and Council that commercial development for general power purposes was impossible either on the Thessalon River or at the Basswood Lake location mentioned in the Clerk's letter. The watershed in both cases is of such a restricted nature that no adequate water supply can be obtained. They are now satisfied that the Mississagi River is the only commercial source of power supply available to Thessalon and Bruce Mines. The Fifth Report of the Commission includes an estimate of the cost of supplying Thessalon and the Bruce Mines from this development at Slate Falls on the Mississagi. Two years ago an estimate was also made for Bruce Mines on the cost of transmitting power from Squaw Chute to that town, so that the power recommendations of that neighborhood have been pretty well investigated. Probably the only possibility of Thessalon being able to finance a development proposition on the Mississagi is through their co-operation with Bruce Mines, and they have been advised to this effect.

They were also advised to obtain from the Crown Lands Department information as to whether or not the site at Slate Falls is free from incumbrances. The site is said to be held at present by parties in the United States, who have a mining location there, but whether they have a patent or whether the lease is subject to cancellation is a matter of investigation.

March 22nd, 1910.

REPORT NO. 4.

Mississippi River.

The plans and specifications for storage dams at Gull and Long Lakes in the watershed of the Mississippi River have been examined, and we have no serious criticism to make. The overfall sections are amply strong and the double checks in the sluice piers add greatly to the security and operating convenience of the stop log portion of the dams. If these dams are built according to the plans and specifications there is every assurance that they will be safe and permanent structures. It would be well, however, for the Commission to supervise to a certain extent their construction, especially in the early stages, in order to be assured that the foundations are properly stripped and the bed-rock contact satisfactory. It might also be advisable to secure some discharge measurements in the vicinity of the dams.

As regards the general lay-out of the scheme as shown by the plan, it would seem that both dams are deficient in the sluice-way discharge area. At low stages when the water drops below the crest of the overfall the available discharge area will be comparatively small and will allow very little water, over and above natural discharge, to be drawn off the lakes below their natural minimum level.

However, in this particular instance, the above defect is not serious for two reasons; first, because the principal function of these dams is to store flood-water in order to shorten the low water season, and close regulation of flow is not of first importance; and second, because the principal point of regulation is located at the Cross Lake Dam, and any irregularity of discharge from Long and Gull Lakes can be compensated for in the sluices at Cross Lake.

It is highly important that the contract be placed at once in order that the construction may be advanced as far as possible before the freezing weather.

September 19th, 1910.

REPORT NO. 5.

Mississippi River.

On October 12th and 13th the Hydraulic Engineer visited the dam sites at Gull and Long Lakes in the Mississippi watershed, the object of the trip being to make an inspection of the sites and to determine whether or not they were suitable, topographically and physically, for safe and economical construction.

The Contractor had already commenced work at Long Lake and had the site unwatered and stripped sufficiently to show that there was no cause for anxiety as to the material upon which the dam was to be built, as it was solid rock throughout, with the exception of some weathered portions on each shore, where several fissures and frost-cracks are to be shot out or plugged with concrete before the actual construction of the dam is commenced. Practically the same conditions exist at Gull Lake.

The cement is being hauled to the sites of the dams and placed in well-built weatherproof sheds. Fairly good sand and gravel are available within easy teaming distance at both sites. The contract is not a large one, and only requires reasonable care during construction and adequate measures for protection from frost to make the work safe and permanent.

The work covered by the present contract is only preliminary to the full development of the Mississippi, and the Cross Lake storage will probably be the next in order for development.

October 25th, 1910.

REPORT NO. 6.

Renfrew.

The Hydraulic Engineer of the Commission visited Renfrew during the early part of the present month to investigate local power conditions; also to determine the extent of the storage possibilities of the Bonnechere watershed, to recommend a scheme of development. Owing principally to the dry spring, the water in the Bonnechere at this time had reached a low stage unprecedented in the history of the river, and had failed almost entirely as a source of power. An idea of the conditions in the town of Renfrew may be obtained from the following list of electric and hydraulic energy users:

M. J. O'Brien	50 h.p.	motor shut down.
Hilliard Brick Yard	50	" "
Renfrew Brick and Tile Company	65	" "
Renfrew Street Lights		"
Scott & Jamieson	10	" "
Renfrew Manufacturing Company	35	" ¼ time.
Renfrew Machine Company	35	" ½ time.
Renfrew Roller Mills	115	" 4 hrs. per day.
Renfrew Water Works	50	" using steam.
Renfrew Lime and Quarry		"
Renfrew Milling Company, Hydraulic		"
Renfrew Knitting Company "		"
Renfrew Electric Company "		"
Logan Bros. "		"
Imbleau Foundry Company	6 h.p.	motor "

It is evident from the above data that low water in the Bonnechere means a very serious financial loss to the Municipality of Renfrew, as well as other power-users along the river, and it is therefore necessary that some action be taken to alleviate present conditions. The preliminary investigation of storage possibilities in the watershed was undertaken with this object in view.

There are in the Bonnechere watershed a considerable number of Lakes, the most important being Golden Lake, Round Lake, Clear Lake, Paugh Lake, and Rabitaille Lake.

Of these, Golden Lake and Round Lake, having a combined area of about 26 square miles, are the most important as regards available storage capacity and volume of run-off. The available sites for dams at the outlets are none too good from a topographical standpoint, but in view of the large volume of storage, the unit cost of storage will be very reasonable indeed, probably less than fifty cents per acre foot.

The best dam location at the foot of Golden Lake is immediately below the bridge of the Pembroke branch of the Grand Trunk, and is about half a mile from the village of Golden Lake, so that convenient arrangements can be made for attendance. The bed of the stream is covered with boulders, but both banks are overlaid with soil, so that it will be necessary to dig test pits to determine the nature of the under-lying material. The site of this dam is only a quarter of a mile from Golden Lake Station on the Grand Trunk, and first-class sand is available within a mile.

At Round Lake the conditions at the best dam location are more favorable than at Golden Lake, as there is an outcrop of solid rock on each bank. First-class sand is available within a mile, and the teaming distance from Killaloe, on

the Grand Trunk, is about six miles by a good road. Arrangements for attendance on the dam could be made with a farmer, whose house is immediately adjacent to the site.

The amount of water that can be stored in these two lakes cannot be determined definitely until a survey has been made and flood contours established. The Bonnechere watershed is composed almost entirely of surveyed and sub-divided townships, and about the shores of Golden and Round Lakes a considerable number of cleared farms are located, many being occupied at the present time. These will be more or less effected by the building of storage dams, and one object accomplished by the survey will be to determine the extent of damage due to raising the water to different levels.

Assuming three feet and five feet of storage available on Golden and Round Lakes respectively, a rough calculation based on available data indicates that the

"Timber Slide," Chats Falls, Ottawa River.

storage run-off would maintain a continuous discharge of 250-second-feet for about 125 days. This discharge would produce 840 h.p. at the turbine shaft in the Renfrew Power Company's plant and at the Municipal Power Site. Also the surplus run-off would be sufficient to provide an average continuous discharge of 870 second-feet for the remaining 240 days. As this surplus run-off is non-regulated, it is possible that the minimum discharge might at times fall below 250 second-feet, but this condition, if it exists, can be modified and possibly eliminated by either impounding more water in Golden and Round Lakes or developing other storage basins in the watershed.

The greater portion of the Bonnechere watershed has been timbered with pine and is now fairly well covered with second-growth pine and hard wood. It is very sparsely settled as the land for the most part is quite unfit for agricultural purposes. It is probable that all the larger lakes in the watershed may be in the future developed to the limit of their capacity for storage purposes, and in view

of the fact that the land surrounding these lakes is not suitable for any other purpose but that of reforestation, it would be advisable to withdraw from settlement all land, located as above, which is still vested in the Crown.

It is evident from the above figures that the development of the storage in the Bonnechere watershed will greatly augment the usefulness of the river as a source of power, and careful consideration is necessary in connection with the laying out of an economical and comprehensive scheme of development, and in preparing estimates of cost. The question of cost and design must be held over until the necessary data in connection with flow, flood, damage, lake, area, dam location, etc., has been secured.

October 25th, 1910.

REPORT NO. 7.

Renfrew.

The level of the Bonnechere reached such a low stage in the fall of 1910, that the river was practically useless as a source of power, and for some time such industries in the Town as were not equipped with steam auxiliaries were practically without motive power. The details of the situation were set forth in the Chief Engineer's Report to the Chairman of the Commission under date October 25th, 1910.

The conditions at that time demonstrated conclusively the necessity of providing adequate means of improving the flow characteristics of the river, and during the past winter the watershed was examined and certain surveys made to ascertain the extent to which conditions could be improved by artificial storage. The object of this report is to set forth the results of the work so far accomplished and to draw such conclusions as the data collected would warrant.

Precipitation and Run-Off.

Due to the lack of rainfall records in the Bonnechere watershed, it is impossible to estimate the percentage of run-off with certainty. Records at Renfrew extending back to 1882 indicate that the mean annual rainfall at that point is about 25 inches. Records for any other points in the watershed are entirely lacking, but on the height of land in the Algonquin Park region the records show a mean annual rainfall of 40 to 43 inches. In view of this it would seem reasonable to assume 30 inches as a measure of the average distribution of rainfall above Golden Lake Village and 25 inches for the mean annual rainfall on the remainder of the Bonnechere watershed.

The measured run-off of the Ottawa basin averages about 52 per cent. of the annual precipitation, and the run-off of the Beaver River for the year 1910 is about 45 per cent. of the mean annual precipitation. Up to the present time, these are the only two rivers in the Province for which the approximate run-off has been estimated. It will probably be safe, however, to assume that the Bonnechere can deliver 33⅓ per cent of the annual rainfall, and on this basis the upper basin would deliver 10 inches, and the lower basin 8.33 inches of rainfall, using the figures for mean annual precipitation just assumed. All subsequent figures will, therefore, be based on 30 inches and 25 inches of mean annual rainfall, and 10 inches and 8.33 inches of run-off, respectively.

Character and Extent of Watershed.

The watershed of the Bonnechere above Renfrew has an area of about 833 square miles, the head waters being within the limits of Algonquin Park.

The watershed contains a considerable number of lakes, the most important being, in order of magnitude, Golden Lake, Round Lake, Clear Lake, Paugh Lake and Rabitaille Lake. Below the Township of Richards the rock formation is overlaid with sand and sandy loam with an occasional outcrop, and the country is cleared and settled. Above the Township of Richards the rock outcrop predominates and the country is wild and unsettled. Golden, Round and Clear Lakes are in the settled district, and Paugh and Rabitaille Lakes are in the upper and unsettled portion of the watershed, which at one time was covered with white pine. The pine has been cut out or burned out and the district is becoming reforested with hard-wood and a considerable quantity of second growth red and white pine. As the reforestation continues, the ground storage capacity of the watershed will increase and the natural regulation of flow will be improved.

Storage Capacity and Run-Off.

The extent of the storage possibilities in the Bonnechere watershed will be considered to be covered by the five lakes listed above, and in tabular form hereunder is given the lake area, area of catchment basin, available run-off, storage draft and storage capacity. The storage draft on Golden and Round Lakes has been determined by inspection and survey, but for the other three lakes it has been estimated only, the estimates being considered reasonable.

Lake.	Catchment Basin Sq. miles	Lake area Sq. miles	Storagedraft feet	Run-off Millions of cub. feet	Storage capacity Millions of cub. feet
Golden	560	14.6	3	13,005	1,221
Round	403	10.8	6	9,359	1,808
Paugh	31	2.7	10	720	453
Rabitaille....	13	.55	15	302	280
Clear	41	6.8	5	791	948

From these figures it would seem that the estimated storage draft on Paugh and Clear Lakes should provide storage capacity more than sufficient to conserve the entire run-off of their respective watersheds, while in the case of Round and Golden Lakes there would be a large surplus run-off after their storage capacity had been exhausted.

The watershed of the Bonnechere above Golden Lake will deliver 13,005 millions of cubic feet per annum on a basis of 10 inches of available precipitation, and the remainder of the watershed above Renfrew, about 273 sq. miles, will deliver about 5,267 millions of cubic feet per annum on a basis of 8.33 inches of available precipitation. The total annual discharge at Renfrew would, therefore, be 18,272 millions of cubic feet. The total storage capacity as calculated above is 4,821 millions of cubic feet, or about 26 per cent. of the annual run-off. Taking into account the possibility of fall replenishment, the complete reservoir system should be able to control 40 per cent. of the annual run-off.

Scheme of Development.

While the full development of the storage facilities of the Bonnechere watershed will no doubt ultimately be found necessary, it would be unwise and hazardous to proceed with the full development at once with such meagre data available in connection with rain-fall and run-off. A safer course to pursue would be to let a reasonable period of time elapse between the successive stages of development, in order that sufficient data could be collected to prove the truth or fallacy of the assumptions upon which the scheme is at present based. Following out this line of reasoning, the first step would be the construction of a storage dam at Round Lake. This lake has the greatest storage capacity and the topographical features of the dam-site are favorable for construction, so that the development of its storage would afford a maximum amount of relief with a minimum of capital investment.

The next step in the development should be the building of a dam at Golden Lake. Topographical conditions are not favorable for the building of a dam at Golden Lake, but the volume of storage is large enough to warrant considerable capital investment when additional storage is required. Subsequently, Clear Lake, Paugh Lake, and Rabitaille Lake could be developed in the order named, and thereafter the control of Round, Rabitaille and Paugh Lakes could be centralized at the Golden Lake dam, and water being drawn off the upper lakes intermittently

as the level of Golden Lake was drawn down. The water impounded in Clear Lake could be held as a reserve to tide over periods of extreme maximum flow.

Estimated Volume of Storage Flow.

The estimated mean annual run-off of the Bonnechere watershed above Renfrew would produce an average continuous discharge of 580 second-feet throughout the year with perfect regulation. Assuming that the mean discharge in a dry year would be 75 per cent. of this, the minimum mean discharge would be 435 second-feet.

The mean discharge of the Ottawa River is equivalent to 1 cubic foot per second per square mile of watershed, and 435 second-feet is equivalent to only .52 cubic feet per second. Assuming as above that the completely developed system can control 40 per cent of the annual run-off, 300 to 350 second-feet should be considered a conservative estimate of ultimate minimum flow at Renfrew.

Considering the Round Lake storage by itself, a dam with 6 foot draft on the sills could deliver 175 second-feet for 120 days from storage alone. This would mean a minimum of 225 second-feet at Renfrew, if the extreme low-water discharge at that point is assumed to be not greater than 50 second-feet. The uncontrolled surplus run-off of 16,464 million cubic feet could probably be depended upon to hold this minimum for the remaining 8 months of the year.

The joint effect of the Round and Golden Lake storage would be to produce a continuous discharge of 250 second-feet for 140 days, leaving an uncontrolled surplus of 15,242 million cubic feet to hold this minimum for the remaining 225 days of the year.

The combined storage of Round, Golden and Paugh Lakes, would produce a continuous discharge of 250 second-feet for 174 days, leaving an uncontrolled surplus of 14,523 million cubic feet to hold this minimum for the remaining 191 days of the year.

The combined storage of Round, Golden, Paugh and Rabitaille Lakes would produce a continuous discharge of 300 second-feet for 151 days, leaving an uncontrolled surplus of 14,371 million cubic feet to hold this minimum for the remaining 214 days of the year.

The Clear Lake storage would produce a continuous flow of 102 second-feet for 90 days. As before mentioned the Clear Lake water could be held to tide over periods of extreme minimum flow, or to help out the uncontrolled discharge if it should prove at times unable to adequately supplement the discharge from storage.

It is to be noted that the discharges above estimated are based upon the assumption that the reservoirs will be filled only during the spring freshet. It is reasonable to expect some replenishment in the autumn, in which case the figures given above should be exceeded. All these figures at the present time, however, simply indicate reasonable possibilities, and whether or not they will be fully realized can only be ascertained through experience in operation.

Power Capacity.

The figures hereunder show the amounts of continuous 24 hour power available at the turbine shaft at Renfrew under a 35 foot head, using the figures for discharge as above:

Discharge.	Horse-Power at 35 ft. head.
300 second-feet	955 h.p.
250 "	795 "
225 "	715 "
175 "	557 "

As the above figures refer to continuous 24 hour power, the plant at Renfrew could install capacity for a mixed load of 10 hr., and 24 hr. power anywhere up to 50 per cent. in excess of the power capacities tabulated above, the amount of such excess depending on the relative proportions of 10 hr. and 24 hr. power, and upon the facilities for regulating daily flow.

Costs.

The work done last winter included a contour survey of Round Lake, a detailed survey of the dam-site and an investigation of the dam-site at Golden Lake. From the data collected it has been possible to prepare a fair estimate of the cost of storage works at Round Lake, a favorable location for the dam having been established.

The dam location at Golden Lake is not good, quicksand being encountered in the test-pits, but the volume of storage would justify considerable expenditure for construction at this point.

No effort has been made as yet to establish the location of dams at Clear, Paugh and Rabitaille Lakes, but it is reported that favorable sites are obtainable. It will also be necessary to make contour surveys of Golden and Clear Lakes before any costs, other than those in connection with Round Lake, can be determined.

The plan of Round Lake submitted herewith shows that by raising the water 6 feet above winter level, about 371 acres of land will be flooded, and by raising it 10 feet above winter level, about 682 acres of land will be flooded. The storage capacity of the lake has been estimated for the 6 foot rise only. Assuming $10.00 per acre as an average price, it would cost about $3,710 to purchase the necessary flood privileges. A careful estimate of cost indicates that a dam with three 14 foot sluices, a long-chute and a 100 foot spill-way, capable of holding 8 feet of water on the sills, could be built at low water for $3,700. The total cost of land damages and construction as estimated above would, therefore, be $7,410 or about 18c. per acre-foot of storage. This very low unit cost demonstrates the economic advantage of the scheme beyond possibility of argument.

It should be noted that the departmental survey calls for a 66 foot road allowance about the shores of Round Lake and on both banks of the Bonnechere River in the Township of Hagarty and Richards. The original survey of Round Lake was made in January to March, so that the shore contour of the lake and river at that time would be similar to that established by last Winter's survey and should have about the same length, namely, 20.1 miles. On this basis the total area of road allowance within the flood limits would be 163 acres. This would reduce the flooded area on private property to about 208 acres. All patents granted for lots in this district reserve the chain allowance on the water-front, and if advantage were taken of this, a considerable number of claims might be eliminated entirely.

July 4th, 1911.

REPORT NO. 8.

Simcoe Railway and Power Company.

Plant located at the Big Chute on the Severn River.
Present operating head—56 feet.
Ultimate minimum capacity installed—5,000 h.p.
Present capacity installed—3,000 h.p.

Transmission Distances:

To Midland	28 miles.
To Penetanguishene	33 miles.
To Barrie	52 miles.

Permanent Works:

Concrete power house.
Concrete head-works.
Concrete waste-way.
Concrete main dam with stop-log sluices.
Concrete canal retaining-walls.

Hydraulic Equipment: (present installation)

1 Steel penstock 9 ft. inside diam.
1 Surge tank 10 ft. inside diam.
2 Main unit feeder-pipe, 5 ft. 6 ins. diam.
1 Main unit feeder-pipe, 5 ft. 6 ins. diam.
Exciter feeder-pipe, 3 ft. 8 ins. diam.
3 Vertical, single seated, 66 ins. gate valves on main unit feeder-pipes.
3 Vertical 30 ins. gate valves on exciter feeder-pipes.
3 Leffell double turbines, 35 ins. runners horizontal setting, steel wheel-case and central discharge draft-tubes.
Max. capacity—1,300 h.p. at 300 r.p.m.
Efficiency at 70 to 85 per cent. gate, 80 per cent. guaranteed.
Efficiency at 60 per cent. gate, 75 per cent. guaranteed.
Lombard governors installed with each unit:
One unit to be held as a spare.
2 Exciter turbines, 56 ft. operating head, single runner, 17 ins. diam. Capacity—200 h.p. at 580 r.p.m.
Lombard governors installed with each unit:
All hydraulic equipment built and installed by the Wm. Hamilton Co., of Peterboro.

Electrical Equipment: (Power House.)

3-900 kv-a. Generators (720 kw. at 80 per cent. power factor) water wheel type, 60 cycle, three phase, 2,200 volts, 300 r.p.m. One unit to be held as a spare.
2 Exciter Generators, direct current, 125 volts, 100 kw. 580 r.p.m.
3 Transformers, 600 kv-a. capacity, three phase, 60 cycles.
Low tension taps 2,200, 2,100, 2,000, 1,900 volts.
High tension taps, 25,000, 24,000, 23,000, 22,000 volts.
Oil insulated, water-cooled.
No spare unit installed.
Transformers connected delta to delta.

Switchboard:

3 generator panels, 1 transformer panel, 1 line panel, 2 exciter panels, 1 local service panel, 1 station instrument panel. Switchboard installed with all necessary instruments.

Lightning Protection:

One set type "A" lightning arrestors, style No. 120834, 22,000/25,000 volts. Ungrounded neutral, with combination disconnecting switch, and horn gap fuses, oil and electrolyte.

All electrical equipment installed by Washington Electric Company of Hamilton.

Transmission Line:

Poles—cedar: standard length, 35 ft., 100 foot spacing.

Insulators—33,000 volt porcelain, supplied by the Pittsburgh High Tension Insulator Co. Mounted on wooden pins.

Cable—No. 00 B. & S. aluminum, supplied by the Northern Aluminum Company.

Construction—One three-phase circuit only erected. Two lower wires mounted on two-pin arms. Upper wire mounted on top-pin with peak casting. No ground wire installed. Storm-guys placed every tenth pole and side guyed every tenth pole on tangents. Corner poles buck-armed. Three special steel towers erected at water crossing near Waubaushene for copper conductors on 1,100 foot maximum span. Right-of-way cleared for sufficient distance each side of line to prevent damage by wind-falls. Telephone line mounted on same poles.

Sub-Station:

Building—red brick, gravel roof.

Equipment—3-550 kv-a. transformers, three-phase, 60 cycles.

High tension taps 22,000, 21,000, 20,000, 19,000 volts.

Low tension taps 2,300, 2,200, 2,100, 2,000 volts.

Oil insulated, water-cooled.

No spare unit installed.

Transformers connected delta to delta.

Switchboard—1 line panel, 1 transformer panel, 5 feeder panels, 1 station panel.

Switchboard installed with all necessary instruments.

Lightning protection.—One set type "A" lightning arresters, style No. 120834, 22,000/25,000 volts. Ungrounded neutral, with combination disconnecting switch and horn-gap fuses, oil and electrolyte.

Guaranteed Electrical Efficiencies.

Generators: At 1¼ load, 94.4% minimum, 100% power factor
" full " 94.1% " " " "
" ¾ " 92.8% " " " "
" ½ " 90.0% " " " "
" ¼ " 84.25% " " " "

			600 kv-a.	500 kv-a.
Transformers:	At ¼	load ..	96.4%	96.4%
	" ½	" ..	97.9%	97.7%
	" ¾	" ..	98.2%	98.1%
	" full	" ..	98.3%	98.2%
	" 1¼	" ..	98.2%	98.1%

Present Stage of Construction.

At the time of inspection all dam construction had been completed, also the head water canal, inlet piers and racks. The power-house walls and roof were completed and the temporary wooden end was being built. The remainder of the work to be done in the power-house consists mainly of the placing of floor-slabs and glazing.

The penstock, feeder pipes and wheel cases were on the ground and installation of same was in progress. The surge tank was nearly completed. The main turbines and exciter units and governors were not delivered, but were believed to be in transit. Considerable difficulty is being experienced in connection with the transport and erection of the hydraulic equipment, resulting from its being shipped in heavy and unwieldy sections.

The electrical equipment is practically all on the ground, and will shortly be installed.

All poles have now been erected on the transmission line, and all material has been delivered. Cable is being erected at the present time, as well as the guying and the bracing, which is done at the same time. The steel towers have been delivered at Waubaushene, and they are probably being erected at the present time.

The sub-station building at Midland has been completed and is ready for the installation of electrical equipment.

The Company will probably not be in shape to deliver power before the first of April.

The building and permanent works of the Company are fairly well designed, and the workmanship and quality of material are excellent. The hydraulic and electrical equipment at the generating and receiving end is of standard type, but the reliability of the service would be increased by the installation of a spare transformer at each end of the line.

The transmission line, consisting as it does of a single circuit with the upper wire on top of the pole and no ground wire, is the weakest link in the system. The line is built, however, in a substantial manner. The poles are strong, closely spaced and securely guyed, and the insulators have a good factor of safety. The line is, therefore, in good condition to withstand wind and sleet, the latter being very seldom encountered in that region. The main cause of interrupted service would probably be malicious injury or the shattering of insulators by lightning. It is reported that the single circuit line from the Ragged Rapids to Orillia has given practically no trouble since the plant was installed, and the same conditions might reasonably be expected to exist in the case of the line from the Big Chute.

The municipalities of Midland and Penetang both have steam pumping plants installed, and as far as the municipal needs are concerned, interrupted service could merely cause annoyance and inconvenience. It is a different matter, however, with industrial load, and while in the beginning the operation of the system may prove entirely satisfactory, the lack of line duplication and spare transformer equipment is a possible source of trouble which will undoubtedly manifest itself sooner or later.

December 9th, 1910.

REPORT NO. 9.

Lindsay Light and Power Company.

Attached hereto is a detailed report on the plant of the Light, Heat & Power Company of Lindsay, Ont., and also a report, with estimates, dealing with the proposal of the municipality of Lindsay to purchase the Company's plant.

The Company's generating plant is located at Fenelon Falls, and power is transmitted at 11,000 volts to the substation at Lindsay.

The distribution of the power sold and the resulting revenue from different classes of service show that the lighting service, while it produces 66 per cent. of the total revenue, uses only 24 per cent. of the total output of power, and the industrial load, while it produces only 34 per cent. of the total revenue, consumes 76 per cent. of the total output of power. This would indicate that any revision of rates should tend towards a reduction of unit rates for incandescent lighting, the present net rates being 9 3-8 cents for residential and a special rate of 8 cents for certain classes of commercial lighting.

The kilowatt hours sold under the general rates for lighting during 1910 amounted to 140,049, while the kilowatt hours sold under the special lighting rate amounted to 54,730. The total quantity of power sold for all classes of lighting was 456,000 kilowatt hours, as compared with 1,464,000 kilowatt hours sold for power.

Power Conditions.

The maximum instantaneous load at the switchboard of the plant at Fenelon Falls during 1910 was approximately 910 h.p., and the average annual load about 355 h.p., which gives a load factor of approximately 39 per cent.

These figures were derived from the station load sheets, but since there were no watt-hour meters or power-factor meters installed, it was necessary to assume an arbitrary value for power factor, which necessarily makes the above figures approximate. They are sufficiently accurate, however, to demonstrate the necessity of improving the load-factor if the municipality were purchasing power under a contract similar to those made by the municipalities in the Niagara System. This can best be done by increasing the industrial load and at the same time encouraging customers to enter into limited hour contracts.

Distribution and Sale of Power by Municipality.

In the event of the Town of Lindsay definitely deciding to acquire control of the local power situation, three alternative courses of procedure seem to be worth considering: first, to purchase outright the low-tension distribution system and contract with the Commission or with the Company for the supply of power delivered at the low tension busbars in the Lindsay sub-station, second to purchase outright the transmission line and low tension distribution system, and contract with the Commission or the Company for a supply of power delivered at the high tension busbars at Fenelon Falls; third, to purchase outright the entire property of the Lindsay Light, Heat and Power Company, including water-rights, generating plant, transmission line and distribution system.

In the first case, the price paid to the Company would include a profit on generation, step-up transformation and transmission. In the second case, the price paid to the Company would include a profit on generation and step-up transformation only. This advantage is to a certain extent offset by the fact that the

transmission line is not by any means a first-class piece of construction and the depreciation and maintenance charges would be high, so that the second alternative would have no advantage over the first unless the transmission line could be acquired strictly on the basis of its present physical worth. There is no reasonable hope of doing this, as the line is at present an integral part of a very profitable concern.

Under the third alternative, the Municipality would have complete control of the system from the point of generation to the customers' service connections. This would place all matters relating to the cost of power entirely under the control of the Municipality, and also relieve them of contract restrictions which might prove onerous if the municipal market retained its present characteristics.

Under the first two schemes a low-load factor would have the effect of penalizing the generating company, and compensation would have to be provided for in

"The Horse-Shoe," Chats Falls, Ottawa River.

the cost of power and in the terms and conditions of the contract. If the Municipality owned the generating plant, however, the effect of a low-load factor would be shifted back one stage to the water supply, which would entail no penalty and consequently no pecuniary compensation or contract restriction.

Another important point to consider is that in owning the transmission line and distribution system, the Municipality will have on its hands a constantly depreciating asset which will require the expenditure of considerable sums annually for maintenance, as well as a yearly sinking-fund appropriation to maintain the system at its present value. If the generating plant is purchased, the Municipality will have in the power-site and water-rights an appreciating asset, the increasing value of which will go a long way towards balancing the depreciation on other portions of the system.

The appreciation in value of the power-site is due to two causes; first, because the constantly increasing cost of fuel generated power tends to make all hydraulic power-sites relatively more valuable; secondly, because the storage works in the Trent River watershed are being constantly enlarged and improved, and the resulting increase in low-water flow is becoming more and more apparent. As a result, the water-powers on the Trent Valley Canal System, of which that at Fenelon Falls is one, are increasing in value year by year, and the best obtainable regulation of flow has not yet been realized.

In view of these facts it should require no further argument to prove that the best plan for the Municipality to follow is to acquire the entire plant and rights of the Lindsay, Light, Heat and Power Company, and to consider the other two alternatives only on condition that unsurmountable difficulties arise in carrying on the negotiations for complete purchase.

Power Capacity.

Up to the present time the plant has never suffered from shortage of water, and when the regulation of the upper waters has reached the maximum efficiency, the dependable flow may reasonably be assumed to be in the neighborhood of 1,000 second-feet, of which about 150 second-feet could be used by the Power Company under its lease. Under a head of 26 feet, this would generate 1,775 hydraulic horse-power, and as there is about five square miles of storage area tributary to the head-works, the plant would easily carry 2,000 h.p. or more on peak load.

The Company has under consideration an addition to the plant which will double its present capacity, and in view of the above such a step would seem to be justifiable in so far as the hydraulic capacity of the site is concerned.

Estimates.

The estimates presented herewith are based on two assumptions: first, that the plant be operated in its present condition and at the present rates for one year: second, that $70,000 additional be expended at once in improving the plant and doubling its present capacity. The surplus shown in each case is based on the Company's actual revenue for 1910, and with a normal expansion of business for 1911, the actual surplus could reasonably be expected to exceed the figures given in the estimates.

Outside of interest, sinking fund and depreciation, the annual charges in the attached estimates are based on the Company's 1910 balance sheet, the different items being altered in some instances to suit new conditions.

As regards operating the plant in its present condition it must be borne in mind that the operation involves a certain amount of risk as to continuity of service, since the plant has no reserve capacity under peak load conditions. Ordinarily, operation under such a condition could not be recommended, but in this case it happens that the plant owned and operated by the Municipality of Fenelon Falls is situated directly across the river from the plant of the Lindsay Light, Heat and power Company, and there is a mutual agreement between these two for interchange of power in case of breakdown. For this reason, the Town of Lindsay might with a reasonable amount of risk obtain satisfactory service from the plant in its present condition, disregarding, of course, the possibility of a protracted shut-down due to destruction or serious injury to some portion of the plant. Operating on this basis, the estimate indicates that the resulting annual charges would be $26,629 and the surplus, based on last year's revenue, would be $10,920.

In estimate No. 2, the $70,000 additional investment would largely eliminate all danger of serious interruption of service, and at the same time double the capacity of the generating plant. The total annual charges would then be $32,479, and the surplus, based on last year's revenue, would be $5,070.

Owing to the fact that the Company's present cash reserve will not be available to the Town in the event of purchase, it is proposed to re-establish this fund out of the surplus which will be realized from one year's operation of the plant at the present existing rates. As above shown, this fund at the end of the year's operation would amount to $10,920 under the first estimate, or to $5,070 under the second estimate.

Taking into consideration existing conditions, it would seem that the Town could reasonably undertake to operate the plant in its present condition for a year, and the resulting surplus carried to rest would put the system on a safe financial basis. The attention of the management could thereafter be given to improvement of plant, extension and improvement of service, and to reduction of rates.

Estimate No. 1.

Based on assumption that plant is operated for one year in its present condition and at existing rates, relying on the Fenelon Falls Municipal plant for reserve power.

Capital Cost:		
Purchase Price		$230,000 00
Annual Charges:		
Annual Renewals and Repairs	$1,350 00	
Insurance	375 00	
Right-of-Way Rental	300 00	
Taxes	1,000 00	
Rent	150 00	
Depreciation charge on Existing System	4,464 00	
Operation and Administration	4,500 00	
Interest, 4½% on $230,000.00	10,350 00	
Sinking Fund, 1.8% on $230,000.00	4,140 00	
		$26,629 00
Revenue for 1910		37,549 00
Estimated Surplus		$10,920 00

Estimate No. 2.

Providing for the expenditure of $70,000 on capital account immediately upon assuming control of the present system, thereby doubling the capacity of the generating plant.

Capital Cost:		
Purchase Price	$230,000 00	
Additional Plant and Improvements	70,000 00	
Total Capital Investment		$300,000 00
Annual Charges:		
Annual Renewals and Repairs	$1,350 00	
Insurance	400 00	
Right-of-Way Rental	300 00	
Taxes	1,000 00	
Rent	150 00	
Depreciation Charge on Existing System	4,464 00	
Depreciation Charge on Additional Plant	915 00	
Operation and Administration	5,000 00	
Interest, 4½% on $300,000.00	13,500 00	
Sinking Fund, 1.8%, $300,000.00	5,400 00	
		$32,479 00
Revenue for 1910		37,549 00
Estimated Surplus		$5,070 00

Lindsay Light, Heat and Power Company.

Plant located at Fenelon Falls.
Operating head, 24 ft.
Capacity installed, 1,100 h.p.
Transmission distance to Lindsay, 14 miles.

Permanent Works:

Brick power-house.
Concrete canal retaining-wall.
Wooden dam built by and controlled by Trent Valley Canal System.

Hydraulic Equipment:

2 Turbine units, each consisting of one pair of 40 in. Samson wheels.
Steel wheel-case, horizontal setting, central discharge, steel draft tube.
2 size C. Woodward governors.
1 Exciter turbine, 20 ins. single Samson, horizontal setting.

Electric Equipment: (Power House)

2-400 kw. C.G.E. Generators, class 36-400-200, 3 phase 60 cycles, 550-605 volts, 382 amperes. Revolving armature, 200 rev. per minute.

1 Exciter generator, 20 kw. 125 volts, 160 amperes. Speed 385 rev. per minute.

6 transformers, 135 kw. single phase, 60 cycles, type A.B. air-cooled, 550 to 11,620 volts. One bank operating on each transmission circuit.

1 motor-driven Buffalo Forge Co. blower attached to each bank of transformers.

Switchboard:

2 generator panels, 2 transformer panels, 1 exciter panel, 1 synchronizing panel, 2 line panels, 1 ground detector panel. All equipped with necessary switches and instruments.

Transmission Line:

Route lies along the Lindsay-Haliburton branch of the G.T.R. Cedar poles spaced 95 ft. average. Two three-phase circuits erected composed of No. 4 B. & S. copper. Circuits mounted on one 4-pin and one 2-pin crossarm, one circuit on 12,000 volt porcelain insulators and one circuit on 11,000 volt glass insulators. Each circuit equipped with a set of Garton-Daniels lightning arresters. One barbed ground wire mounted on top of poles, and grounded every third pole.

Sub-Station:

Building of brick. Not built for present purpose, but was taken over from the Gas Company.

6 transformers, 135 kw., oil cooled, 10,600 to 1,100 volt. One bank operating on each transmission circuit. Switchboard—2 line panels, 2 transformer panels, 2 oil switch panels, 4 distribution panels. All equipped with necessary switches and instruments.

Arc Equipment:

3 tub transformers, 21 kw., 60 cycles, 1,100 volts 6.6 amperes, secondary.

3 Arc panels, type A.S.C.T., oil switch and instruments.

The most objectionable feature in connection with the plant at the present time is the lack of spare generators and transformer capacity, as it requires practically the full rated capacity of the plant to carry the maximum peak.

Up to the present time any shut downs that have occurred have been in the summer during periods of light load, and the Company has been unusually lucky up

to the present time, in being able to supply continuous power during periods of maximum demand.

The present arrangement of the generating plant is also rather objectionable in that the wheels are so located that they are not easily accessible for inspection and repair. This objection could be obviated at a reasonable cost by making some alterations in the power-house building.

Both generators are of the old revolving armature type, and while they are giving good service at the present, they would probably have to be disposed of at scrap valuation when it becomes necessary to replace them.

The transmission line is not by any means a first-class piece of construction. The location on the railway right-of-way makes necessary the introduction of a large number of angles and curves which could have been eliminated to a certain extent had a private right-of-way or a road allowance been used. No serious trouble has resulted so far from this construction, although at Cameron station, the station structure and a large barn are located directly beneath the line, and in the event of either of these buildings catching fire, the adjacent poles would undoubtedly be burnt, and the system temporarily paralyzed.

The sub-station equipment in Lindsay is located in a building purchased from the Gas Company, and is of course not well adapted for use as a sub-station. The building is deficient in head room, and while the obtainable clearances are sufficient for the present voltage, radical changes would require to be made in the construction of the building to adapt it for higher voltage. Apart from the lack of spare transformer capacity, there are no inherent defects in the station which would effect continuity of service under present conditions, the principal disadvantage being the lack of facilities for the quick repair and handling of heavy apparatus. In order to be able to guarantee reasonable continuous service, the Power Company would require to have to make the following additions and alterations:—

(1) Install another generating unit in the power station at Fenelon Falls, with a capacity at least equal to that of each of the units at present installed.

(2) Install another exciting unit, preferably driven by an independent turbine.

(3) Install an extra transformer in the generating station, and one at the sub-station.

(4) Make such alterations in the power-house as will be necessary to place the turbines on a proper foundation, and make them easily accessible for inspection and repairs.

(5) Deflect the transmission line at Cameron station to avoid the station building and barn, or else remove the buildings from underneath the line.

The dam at Fenelon Falls is in poor repair but is controlled by the Trent Valley Canal. It is reported that this dam is to be replaced in the near future and the height probably increased.

The Power Company holds a perpetual lease from the Department of Railways and Canals by virtue of which they are entitled to the use of all water, for power purposes, over and above that required for the uses of navigation.

When the Power Company secured this lease from the original Lessees, one quarter of the surplus water had been assigned in perpetuity for mill privileges on the other side of the river. The Power Company, is, therefore, by virtue of this assignment, entitled to only three-quarters of the total quantity of surplus water.

April 10, 1911.

REPORT NO. 10.

Peterboro.

The Otonabee River is the natural source of power for the City of Peterboro, and flows through the Corporation limits. The river is part of the Trent system, being on the route of the Trent Valley Canal, and the storage system which is being established in the upper waters by the Department of Railways and Canals is having an appreciable effect upon the flow of the river, and constantly increasing its value as a source of power.

Available Flow—Power Capacity.

Unfortunately no interconnected series of gaugings and gauge-height records are in existence, so that it is impossible to obtain reliable data as to the flow characteristics, all available figures relating to minimum flow being largely a matter of individual estimate, based on isolated gaugings. As a result there is considerable divergency of opinion as to the present minimum flow and the greatest possible minimum flow with storage.

Estimates of present minimum flow vary from 1,100 to 1,500 second-feet and from 1,500 to 2,500 second-feet with storage. The figures for the present minimum flow are based on the gaugings above mentioned, but the amount of minimum flow with storage is merely a surmise. From the load sheets of plants operating at the present time in Peterboro, it has been established, however, that there is at least 1,400 second-feet available for peak load purposes whenever required, and while the actual minimum flow probably falls below this at times it woud be safe to assume 1,400 second-feet as being commercially available at present, with 2,000 to 2,500 second-feet a future possibility.

Basing hydraulic construction on this assumption, it would be safe to install generating equipment to handle 1,500 second-feet, and power house and head works to sufficient capacity to handle a future flow of 2,000 second-feet.

The portion of the Otonabee River which flows through Peterboro is not on the main line of the Canal, which leaves the River at Nassau Bridge, 4 miles above Peterboro, and enters it again just below the Peterboro lift-lock. On this section of the river the head due to the natural slope has been concentrated by means of dams owned and operated by private interests, the flow, however, being regulated by the Canal authorities. Between Nassau and Lakefield the river has been canalized and all dam and lock construction is under the control of the Trent Valley Canal, as are also the resulting heads and water levels.

All the water-powers in this portion of the river are either in the City or within ten miles of it, the most remote location being at the Village of Lakefield. The following is a list of these powers, their power capacity being based on an available minimum flow of 1,400 second-feet.

Quaker Oats Company, Peterboro	3,400	h.p.
Auburn Dam	1,900	"
Peterboro Waterworks	1,500	"
Canadian General Electric Co., Nassau	1,900	"
Dam No. 5, Dam No. 4 — Otonabee Power Co.	3,300	h.p.
Dam No. 3 — Canada Cement Co.	1,500	"
Dam No. 2 — Unallotted	1,300	"
Dam No. 1 — Lakefield (Dixon Bros.)	2,000	"
Total	15,800	h.p.

Available Sites.

The first four locations in the above list are not on the market, but the city has an opportunity to acquire complete control of the power situation as represented by Dams Nos. 1, 2, 3, 4 and 5. These powers have a present aggregate capacity of about 8,000 h.p., and a probable future capacity of 11,000 h.p. It would probably be commercially feasible to develop these powers in rotation in accordance with the market requirements of Peterboro and Lakefield.

Preliminary Development.

The capital outlay which would be necessary to acquire control of all the power embraced in this scheme precludes the possibility of considering the proposition as a whole at the present time, but there is no reason why the municipality should not give careful consideration to the preliminary steps necessary for the consummation of the general scheme. The first step is naturally the selection of the most favorable site for initial development, and in this connection it would seem that if any question of choice is involved it lies between the Otonabee Power Company's site at Dams No. 4 and No. 5, and the Dixon property at Dam No. 1 in the village of Lakefield. An analysis of these two propositions is made hereunder with the object of demonstrating as fairly as possible which has the better claim for consideration from a commercial and engineering standpoint.

Flow.

The Otonabee site is situated some five miles lower down on the river than the Dixon site, and has consequently a greater area of watershed behind it. This advantage is so small, however, that at present both sites can be considered on a par as regards available flow.

Head and Power Capacity.

The present normal head at the Dixon site is 16 feet, but during the winter season the level below the dam could be drawn down so as to give a head of 20 feet. At the Otonabee site a head of 26 feet is available all the year round. The matter of allowing a 20 foot head at the Dixon site is entirely at the option of the Canal authorities, so that on the basis of dependable head the Dixon site has a power capacity of 2,000 h.p. under present conditions, and a probable future capacity of 3,000 h.p., while the Otonabee site has a present capacity of 3,300 h.p. and a probable future capacity of 4,700 h.p. In this instance, therefore, the advantage lies decidedly with the Otonabee site.

Rights Under Lease.

The Dixon property is held under a lease which allows the use of surplus water without other restriction than is laid down in the general conditions on the lease. This lease is renewable every 21 years in perpetuity in consideration of payment of $2.00 per year rental. The Lessees under this lease are not given the right to transmit electric energy.

The Otonabee property is held under a lease which allows the use of all surplus water subject to the general condition of the lease, with an additional restriction to the effect that, should the Trent Canal be improved or enlarged, any increased volume or flow of water which might thereby become available should not be considered surplus water within provisions of the lease nor accrue to the benefit of the lessees.

This lease is renewable for three periods only of 21 years each, the final date of expiry being at the end of the third term, and the rental is said to be $2,100 per year. Under this lease the lessees are given the right to transmit electric energy.

As regards rental and the use of surplus water the Dixon lease is undoubtedly the more advantageous. The Otonabee lease has an advantage in that it permits the transmission and sale of electric energy, but in the event of the City of Peterboro taking over either of these propositions a satisfactory adjustment of the above-mentioned restrictions could doubtless be arranged.

Conditions of Purchase.

The Dixon property has been offered to the City for $200,000. For this sum the City would obtain the unrestricted right to use all surplus water passing and to pass through the flood-gates of the Lakefield Dam, and to install works to develop such power as this surplus water will generate under a 16 foot head.

The property of the Otonabee Power Company has been offered to the City for $225,000. For this sum the City would obtain the right to use all surplus water at Dam No. 4, subject to the conditions and restrictions above mentioned, and the right to install works to develop such power as this surplus water will generate under a 26 foot head. In addition to this, the City would acquire the present 1,500 h.p. plant at Dam No. 5, a 6,600 volt transmission line to Peterboro, a sub-station in Peterboro, a distribution system covering practically the whole city, and a connected load of 1,250 peak horse-power.

The Dixon offer means simply the assignment of a lease. The Otonabee offer includes not only the assignment of a lease, but a complete generating, transmitting and distributing system, handling a load of 1,250 h.p., and capable of handling a load of 1,500 h.p. with very little additional expense.

Development.

The development of the Dixon site involves the building of a generating station, 10 miles of transmission line, a sub-station and a complete distribution system throughout the City of Peterboro, including pole lines, circuits, service transformers and meters. The development of the Otonabee site would involve only the building of a generating plant and the erection of such extra copper as would be necessary to distribute a preliminary 2,700 h.p. economically.

Apart from comparative capital costs, the mere fact that the streets of the city would be obliged to carry a new distribution system, assuming that this is physically possible, would be sufficient to place the advantage with the Otonabee site. In addition to this, the fact that the transmission distance is only 5 miles as compared with ten miles from Lakefield is distinctly to the advantage of the Otonabee site as regards continuity of service.

Costs.

The attached estimate indicates that 2,700 h.p. continuous 24 hour power can be delivered to the customer in Peterboro for an average price of about $16 per h.p. from the Otonabee site. An approximate estimate of costs with reference to the Dixon site indicates that 2700 h.p. could be delivered to the customer in Peterboro for practically the same price as 2700 h.p. from the Otonabee site. As the load approached its ultimate capacity, the advantage would therefore lie more and more with the Otonabee site, and more so as the 2,700 h.p. delivered from Lakefield would require the maximum possible development at the Dixon site.

Market.

If the City took up the Dixon offer it would involve the creation of an entirely new market, with the Otonabee Power Company as a competitor, and also the duplication of distribution lines throughout the city. By buying out the Otonabee Power Company, its competition would be eliminated, a ready-made market would be obtained and the necessity of duplicating the distribution system would be avoided.

Of the points considered above, the most important are: (1) rights under lease, (2) available present flow, (3) annual costs, (4) power capacity, (5) market conditions.

In the matter of rights under lease, the Dixon property at present has the advantage. In the matter of present flow, both propositions are on equal terms. On all the other counts the advantage lies with the Otonabee property.

In view of the above, the conclusions are: (1) If, as seems possible, a perpetual lease to the Otonabee site can be obtained at the present or at a less rental, and if reasonable assurance can be given that no drastic action will be taken in restricting the use of additional surplus flow, then the Otonabee proposition is unquestionably the best: (2) if the terms and conditions as set forth in the present lease were strictly enforced, conditions would still throw the balance in favor of the Otonabee site.

Conditions of Otonabee Lease.

The development rights under which the present plant of Otonabee Power Company operates are held by virtue of a lease taken out on August 1st, 1901, by Messrs. W. E. Meldrum, W. A. Stratton, and R. R. Hall, and later assigned to the Otonabee Power Company. The outstanding features of this lease are as follows:—

(1) It imposes a fixed rental of $1,264 per year for land and surplus water, (2) the life of the lease is for three terms only of 21 years each, the date of expiry being August 1st, 1964, after which date the question of renewal rests solely upon the decision of the Governor-in-Council, (3) Clause 13 of the lease stipulates that should the Trent Canal during the term of the lease be improved or enlarged, any increased volume or flow of water thereby made available shall not be considered surplus water within the provisions of the lease, nor accrue to the benefit of the Lessees, (4) Clause 14 of the lease stipulates that upon the expiry of the second 21 year term of lease, the rental for the final term may be fixed "at any greater or other rate than herein reserved," said rental to be fixed by and at the option of the Governor-in-Council.

This lease covers only the present site of development at Dam No. 5, and a lease will, of course, have to be obtained, covering the combined development of Dams No. 4 and No. 5. This new lease had not been issued when inquiries were made early in March, but it is reported to have been issued recently and to call for a yearly rental of $2,100 for the combined development. For lack of more definite information, it is assumed that the important clauses in this new lease are similar to those in the old lease as above described. The new lease must also include the right to use some 41½ acres of canal lands which the plant will occupy.

The amount of yearly rental and the limitation of the term to 64 years does seriously impair the value of the lease, but the restriction as to the use of surplus water should be looked into closely. If the phrase "improved or enlarged" can be interpreted as applying strictly to the waters forming the navigable channel of the canal, and the locks, dams and other constructed works in connection therewith, then this clause imposes no greater restriction upon the Lessee than Article No. 21 of the General Conditions which accompanies all leases issued by the Department of Railways and Canals. If, on the other hand, this phrase "improved or enlarged" is intended to cover the storage works in the upper watershed, the restriction will have a serious effect both from an engineering and an economic standpoint, and a definite understanding should be arrived at before any attempt is made to carry the scheme into execution.

Scheme of Development.

The contemplated scheme of development at Dams No. 4 and No. 5 involves the combination of the two heads by taking the water from above Dam No. 4 and discharging it below Dam No. 5. This diversion will entail the construction of about 2,800 feet of head-race, and all the private property required for same has been purchased by the Otonabee Power Company. A plan showing the general lay-out of the plant has been prepared and approved by the Superintending Engineer of the Trent Canal, and indicated upon this plan are the several blocks of canal lands which would require to be demised or leased to the Company for the construction of the power-house and head-works. The Canal authorities are considering the possibility at some future time of using the head-race of the new plant for navigation purposes by substituting a new lock of 26 foot lift for the two locks of 12 and 14 foot lift at present existing. In this event the head-race would require to have a much greater cross-section than if it were used for p wer purposes only, and two courses of action are open, namely, to construct at the outset a head-race of sufficient cross-section to accommodate the navigation and power interests, the Department of Railways and Canals bearing a just proportion of the cost, or to allow the construction of a head-race for power purposes only, on the understanding that the Department of Railways and Canals may at some future time, at its own expense and without interrupting the power service, widen the head-race sufficiently to adapt it for navigation purposes. This question should also be settled before any steps are taken to carry the scheme through.

Estimating Data.

In January, 1909, an estimate was prepared for the Otonabee Power Company by a well-known firm of consulting engineers, covering the cost of developing the site at Dams No. 4 and No. 5 for a future installed capacity of 4,000 h.p. and a preliminary installation of 2,700 h.p. A detailed survey was made of the site, complete plans were prepared, and manufacturers' quotations obtained for the different classes of equipment. This complete working estimate has been finally revised to meet the requirements of the canal authorities, and the figures derived therefrom have been used in the general estimate hereto attached.

The existing transmission line consists of a line of wood poles with two 3-phase circuits of No. 1 copper. This copper has a carrying capacity of 2,500 h.p. with 6 per cent. loss, and the line is in good operating condition, so that at the present time no expenditure for transmission is necessary outside of the purchase price.

The Peterboro sub-station is a substantial brick building centrally located in the town and contains 2,000 h.p. rated transformer capacity, stepping down from 6,000 to 2,300 volts, with the necessary switching equipment.

The distribution system completely covers the residential, business and industrial sections of the city but the copper at present erected is not of sufficient capacity to handle more than 1,500 h.p. economically. Some of the larger blocks of power are also located at a distance from the station, so that heavy expenditure in copper would be necessary for serving at 2,200 volts. It has, therefore, been considered advisable to serve such customers by means of a separate 6,000 volt power circuit stepping down at the point of load to motor voltage. The pole lines at present erected are in good shape and the poles are long, so that no difficulty is anticipated in connection with the erection of the extra power circuit. In the general estimate attached allowance is made for the erection of the necessary extra copper, cross-arms, insulators and transformers. An allowance is also made for the building of such new lines as would be necessary to serve new customers not located within the limits of the present system.

The installation of this 6,000 volt power circuit will not only mean a saving of copper, but it will obviate the necessity of immediately increasing the sub-station transformer capacity, as the 2,000 h.p. capacity already installed will handle the lighting and small motor load for some time to come. The system, extended as above described, will easily handle a load of 2,500 h.p.

The attached estimate allows for the necessary 6,000 volt selector switches and a complete equipment of switchboard instruments in the sub-station.

In the estimate of Annual Charges, the maintenance and depreciation are based upon the estimated first cost of such portions of the present plant and equipment of the Otonabee Power Company as will be utilized, and in addition the charges on all new plant. The operating costs of the new system should not be appreciably greater than those at present, but as information in this connection

"The Black Hole" Maitland River.

has not yet been obtained from the Company, the figure given is merely estimated. All other items in the estimate are self-explanatory.

Sale of Power.

The estimates show that 2,500 h.p. could be sold for an average price of $17.55 per h.p. per year. This refers to continuous 24 hour power and does not take into account the possibility of re-sale of 10 hour power, or the possibility of supplying a connected motor load of say 2,000 h.p. with 1,500 h.p. station capacity. Allowing for re-sale of power and over-selling of capacity, it would be entirely safe to assume that the enlarged system could carry a load of 3,000 h.p. to 3,500 h.p., with 2,500 h.p. capacity installed. The lesser figure of 3,000 h.p. would therefore reduce the average price to $14.65 per h.p. per year for 10 hour power.

All the lighting and power business is at present handled by the Company on a flat rate, and all present users of power, who are under contract, should be held to the present rates, during the term of their respective contracts, and all new

power business should be taken at a revised rate to be based on load-factor, and on the annual charges for which the City would be liable in the event of its carrying out the proposed scheme.

All new lighting business should be handled on a meter basis, but at the outset the flat rate light users should have the option of coming in under the meter rate or continuing on the flat rate basis until such time as the revenue from metered light is great enough to allow of a definite decision as to whether or not the lighting load shall be placed on a meter basis exclusively.

Scope of Report and Conclusions.

It is to be noted that the scope of this report does not cover the discussion of present rates or of rates to be charged in the future, this being a question to be taken up later in detail. The function of this report is to indicate the most favorable location for development from an economic and engineering standpoint, and, having established this, to show what capital investment will be necessary to develop and deliver power to the customer. Also to what annual charges such delivery will entail, and to indicate an average price for which the output of the preliminary installation of 2,700 h.p. must be sold to cover said annual charges.

The capital cost for full generating capacity will be about $193,000, and assuming $150,000 of the purchase price chargeable to the generating portion of the system, the total capital cost of power at the switchboard would be $343,000 or $86.00 per h.p. on the assumption that 4,000 h.p. can be ultimately developed. On this basis the price asked by the Company is not unreasonable.

The capital cost and annual charges for 4,000 h.p. capacity have not been included in this estimate for two reasons: first, because the restrictions of the lease make it uncertain as to whether sufficient surplus water will be available, and, secondly, because if it can be shown that the city can handle the preliminary development of 2,700 h.p. profitably, the success of the scheme is assured, and any increments of generated power would, when sold, tend always to reduce the average cost of production, the result being either an increase in the city's profits or a reduction in cost to the consumer.

An estimate for full capacity would also require an allowance for further extension of the distribution system, and this cannot be estimated upon at present with any degree of accuracy. If the city sold power at cost, the additional investment for extension would be covered by an additional loan. If the city sold power at a reasonable margin above cost, extensions could be made as required and the cost defrayed out of revenue.

In the meantime, the estimates as submitted indicate that the annual charges incident to the development and sale of 2,700 h.p. can be covered by selling power at a very reasonable price. This being the case, the continued success of the scheme would seem to be inevitable, and all consideration as to the cost of power when the ultimate capacity of the site has been reached can safely be left over until market requirements make such consideration necessary. The present conclusion is that the Otonabee site at Dams No. 4 and No. 5 is best suited for the city's purpose, and that the city could well afford to pay $225,000 for the Otonabee Power Company's complete system and develop the site at Dams No. 4 and No. 5, providing a market of 2,500 h.p. is in sight.

No information is at hand concerning the volume of business handled at present by the Otonabee Power Company, but it is reported that their gross yearly earnings are in the neighborhood of $30,000, this being derived from a load of 1,250 h.p. on the peak. If the city can hold this business while developing a market

for the balance of power, it will go a long way towards obviating the possibility of a deficit in the first year's operation.

The figures for power development in the estimate below include the whole cost of the head-race, core-wall and embankment and the necessary excavation, but if this channel is to be used in the future for navigation purposes the Canal authorities might reasonably be asked to stand at least a portion of the cost of this part of the work, which amounts to $43,000.

Estimate of capital investment necessary to buy out the Otonabee Power Company and to generate, transmit and distribute 2,700 h.p. in the City of Peterboro.

Power Development:		
Dredging, Excavation, Unwatering, etc.	$39,950 00	
Concrete	31,400 00	
Brickwork	2,100 00	
Embankment Protection	4,000 00	
Steel and Iron	6,180 00	
Woodwork	1,805 00	
Roof	690 00	
Gate Mechanism	175 00	
Grading, Fencing, and Railway Spur	3,000 00	
Painting	450 00	
Crane	1,100 00	
Hydraulic Equipment	29,200 00	
Electrical Equipment	14,700 00	
Switchboard, Wiring, etc.	4,700 00	
		$139,450 00
Engineering, Contingencies, Superintendence, 20%		27,890 00
		$167,340 00
Extensions and Additions to Distribution System:		
Wire and Cable	$7,710 00	
Poles, Crossarms, and Insulators	312 00	
Service Transformers	9,000 00	
Meters	5,000 00	
Switching Equipment	3,000 00	
		$25,022 00
Purchase Price		225,000 00
Grand Total		$417,362 00

Note.

The estimate for electrical equipment includes the cost of one new generator and cost of moving the old generator to the new plant.

The items "Service Transformers" and "Meters" are to cover the cost of installing services for the new power customers on the 6,000 volt power circuit and to instal service for new customers on metered light.

Annual Charges:	
Interest, 4½% on $417,362.00	$18,781 00
Sinking Fund, 1.8% (30 year) on $417,362.00	7,512 00
Maintenance and Depreciation on Generating Plant	4,437 00
Maintenance and Depreciation on Transmission Line	388 00
Maintenance and Depreciation on Distribution System	2,620 00
Power Rental	2,100 00
Operation and Administration	8,000 00
Total Annual Charges	$43,838 00
Continuous 24-hr. Service:	
Average Cost, on basis of 2,500 h.p. delivered	$17.55 per h.p.
Average Cost, on basis of 2,750 h.p. delivered (10% overload)	15.95 per h.p.
Limited Hour and 10-hr. Service:	
Average Cost, on basis of 3,000 h.p. connected load	$14.65 per h.p.
Average Cost, on basis of 3,500 h.p. connected load	12.55 per h.p.

April 5th, 1911.

REPORT NO. 11.

Lakefield.

Relative to the supply of 400 h.p. on which the Village of Lakefield has requested the Commission to submit a price, it appears that at the present time the nearest existing development from which it might be possible to secure such supply is the Otonabee Power Company, which has a plant at dam No. 4, about 6 miles below Lakefield on the Otonabee River. This company is at present, however, supplying light and power to Peterboro, and it is doubtful if they have sufficient spare capacity to supply the needs of the Village of Lakefield. The natural source of supply for this municipality is dam No. 1 on the Otonabee River, which is located within the corporation limits of the village. This site is owned and has been partially developed by Dixon Bros., of Lakefield, lumbermen, and a small electric plant has been operating there for some years. It would seem that the proper course to pursue would be to either make arrangements with the present owners to develop this site to a sufficient extent to supply the requirements of the corporation, or to arrange for the corporation to purchase the site outright from the present owners.

A development at this location is now being considered in conjunction with the general consolidation scheme for all the developed and undeveloped power locations on the Otonabee River, between the Peterboro Waterworks dam and Dam No. 1 at Lakefield. This scheme involves six projected developments, having an aggregate capacity of 8,300 h.p.

It might be well to send a representative to Lakefield to ascertain the town's attitude in the matter, determining in particular whether or not the town is willing to wait while the consolidation deal is consummated, or whether they wish to purchase the Dixon site.

January 23rd, 1911.

REPORT NO. 12.

Erindale Power Co.

I beg to report that having made an investigation of the plant and lines of the above company, I find the same apparently satisfactory from a construction standpoint. The power plant at Erindale is practically completed and is operating at the present time under a 53 ft. head, which will be increased to 60 in a short time, as soon as the main dam has been completed. This dam, while rather rough and unworkmanlike in construction, is, as far as could be ascertained at the time of inspection, safe enough for ordinary purposes providing the spillway capacity is sufficient. The power-house and wheel chambers are of substantial concrete construction. The generators, which were manufactured by the Allis-Chalmers-Bullock Co., and the switchboard, which is equipped with Ferranti instruments, are both in good operating condition.

The Manager and Chief Engineer of the company claim that the minimum flow of the Credit River at Erindale will not fall below 75 cu. ft. per second. They base this assumption on the reports of various engineers and upon measurements made by Mr. Henry, the chief engineer of the company. While the company appear to be satisfied that this figure is correct, I find it very hard to believe, and am inclined very strongly to the belief that the minimum power will at times be less than half the 400 minimum 24 hour horse power which they claim. This, of course, is a matter which requires investigation in the field and we are not in a position as yet to make an authentic statement with regard to the minimum flow of the Credit River.

The Manager of the company admits himself, however, that it will be necessary to provide auxiliary power from some other source at some seasons of the year to carry their connected load, and for this reason application is made by the company to the Commission for the supply of this auxiliary power.

This auxiliary power is at present supplied by the combined steam and hydraulic plant of the Interurban Electric Co., near Lambton, which is under the same control as the Erindale Power Co. It is for the purpose of dispensing with the Interurban plant that the Erindale Power Company purposes to take power from the Commission, as this plant is poorly arranged, badly situated, and the operation is expensive and unsatisfactory. A complete description of this plant, and also of the plant of Erindale Power Co., is contained in the report of the Chief Engineer of the Company.

The Interurban Electric Company has a franchise in Toronto Junction and West Toronto, which has nine (9) years to run, and the Erindale Power Company has a 25 year franchise in the Townships of York and Etobicoke.

February 1st, 1911.

REPORT NO. 13.

Dog Lake Dams.

Pursuant to instructions received by telegram on March 19th, I proceeded to the site of the work at Dog Lake on Monday, March 20th, in company with Mr. Halford, engineer of the Public Works Department, who went in at the same time to report on the completion of the work, independently, to his Department. We met the resident engineer, Mr. Sedgewick, and proceeded over the work with him, obtaining information on the method of procedure and the character of the work which was not visible. The dams were inspected in order and we are pleased to report on the condition of the work as follows:—

Dam No. 1.

This is an overflow dam and was built on the site chosen and in accordance with the plans, with such exceptions as are noted below.

The excavation for this dam was in excess of that called for on drawing. This work was done on the instructions of our engineer to secure a good foundation and prevent seepage through fissured rock and excavation is from one foot to eighteen inches in excess of that shown on drawing. The excavation was completely filled with concrete, and parts outside of dam formed a toe for same. The concrete is uniformly satisfactory with suitable surface for the service intended. Flash boards to the height of two feet were in place and supported by the posts driven in the four inch pipe as called for on drawings.

Dam No. 2.

The regulating dam is also built in accordance with plans. The excavation for abutments was increased to obtain a better footing and to prevent seepage through fissured rock. The excavation between abutments was filled with concrete to the height of the sills, and this was carried out from one to three feet beyond the heel of abutments forming an apron. The concrete was good although the form work has been rough. The excavation in either end of dam was in excess of that called for in the drawing, necessitating increased quantities of concrete in the wing walls. This work has been done satisfactorily and care was taken in obtaining good rock foundations to render the dam safe. The rock excavation for entrance to regulating dam and the excavation for tail water has been neatly made and is sufficiently cleared to give good entrance and run off. This work is satisfactory. The rock fill in wing walls has been done according to specifications. The steel for flooring, guides, etc., has been placed properly and appears well anchored. The stop logs have been made in accordance with the plans, and while no attempt has been made to dress the rough sawn timbers, the logs in place do not show very much leakage. The flooring is roughly placed but serviceable and secure. The Contractor has double sheeted the main flooring, where only one thickness is called for.

Two pair of regulating sluice gates have been placed in the dam. These are in operating condition. The setting of guides and supports for regulating wheels does not show the best workmanship, but should answer the purpose for which they are intended and are serviceable.

The concrete work is satisfactory and appears to be in good condition.

Dam No. 3.

A rock fill dam with concrete core located across the N. E. outlet. This dam has been constructed in accordance with drawings, with the exception that the excavation for foundations was much greater than expected, on account of the poor rock found at the site. This was all cleared away until good foundations were obtained. The concrete core contains about 200 cu. yd. of concrete in excess of that estimated from plans. The rock fill on the up stream side is satisfactory. The rock fill on the down stream side is of a similar character, although the specifications call for a more careful placing of rock than in the case of up stream side, which was random fill. The down stream fill is, therefore, not as compact as the specifications called for, but appears to have ample weight to insure stability. The diaphragm had been placed in front of core wall and forms left on.

Dam No. 4.

This is a wing dam built where originally located along a rock ridge, but has one more angle than the plan shows. The excavation was made to rock, along its entire length, and good foundations secured for the core-wall. The core-wall at the deeper section showed three expansion cracks, these do not appear to be serious and will silt up. The concrete for 15 to 20 feet on north end of core-wall, and two feet above high water mark, was not good, but this does not affect the dam and might have been left out in the first place. They are going to remove this stretch, however, and replace with good concrete, the material being on the ground for this purpose.

The concrete for 15 to 20 feet on north end of core-wall, and two feet above high water mark, was not good, but this does not affect the dam and might have been left out in the first place. They are going to remove this stretch, however, and replace with good concrete, the material being on the ground for this purpose.

The rock fill on both sides is satisfactory and shows more care in placing than that of No. 3. This dam was built by the Government on a cost plus basis, with the result that the cost per unit is in excess of that for other dams. All work has been carried on in accordance with the specifications with the exception noted. In general, although the workmanship has not been of the best, the work will be serviceable and will perform the function for which it was intended.

As the complete data on costs, and the data on the work as it has been constructed was not immediately available we have instructed the resident engineer to report to this office as soon as all the data on the work and its cost has been collected. This information is desired to complete our files on this work.

It will be well to watch the action of the water on the unprotected abutments of the regulating dam, and should they show signs of erosion, to have them protected by timber or sheet steel. From observations on the site this protection does not seem to be necessary at the present time.

The Contractor and his outfit have left the work.

March 28th, 1911.

REPORT NO. 14.

Dog Lake Dams.

The elevation of Dog Lake on July 4th, at 10.30 a.m., was found to be 1,376.60 ft., and on July 6th, at 9.30 a.m., 1,376.72 ft., the water having risen 0.12 feet in 47 hours. These elevations were taken on still water at the east end of the regulating dam.

A water-gauge was made and placed at this dam so that readings might be taken by Fire Ranger Gammon each time he is in that vicinity, and recorded on sheets left him for that purpose. Mr. Gammon will also take measurements of the height of screws at each gate, which will indicate the discharge.

It was found on inspection that at gate No. 2 the 1½ in. rod used to open or shut the gate had been buckled in such a way as to allow the gate to be almost wide open, while the measurements of the height of screw would indicate it to be only slightly open. The discharge, therefore, cannot be accurately determined until this rod is replaced. The great weight of water no doubt has forced this gate open, thus buckling the rod.

Elevations were taken of the rock fill at each of the other dams, and it was found that these fills had sunk considerably, especially on the up-stream side

Some measurements and elevations were also taken at the Indian Village on the Dog River at the head of Dog Lake. There were eleven buildings in all, built of logs and very old, one having no roof at all, and all in more or less dilapidated condition. These houses are said to have been formerly owned by the "Hudson Bay Co.," and after they had abandoned the post were taken up by the Indians. They are situated upon a slight eminence, and surrounded by the river on one side, and low-lying swamp on the other three sides, and there is no ground nearby to which the houses could be moved.

The Indians, having deserted the village, are now living in tents and the village will probably be inundated when the water has risen two feet more. There is every likelihood that it will rise much higher than this if the present rate of increase continues throughout the summer.

July 12th, 1911.

REPORT NO. 15.

Waddington.

The Commission's hydraulic engineer visited Waddington on Thursday, March 30th, and made a careful investigation of the natural conditions existing in the neighborhood of the proposed development of the New York and Ontario Power Company at Ogden's Island. The main channel of the river along the outer shore of Ogden's Island is wide, the cross section being fairly uniform, the velocity being from 3 miles an hour at the head of the island to probably 6 miles an hour at the lower end. This practically obviates all possibility of a jam in this portion of the river, which might have a tendency to raise the head water in the inner channel and flood the power-house.

The contracted cross section at the Long Sault Rapids some miles down the river frequently causes ice jams, but according to the records of the New York and Ontario Power Company only one jam at this point ever seriously affected tail-water at the Waddington power site. This occurred in the year 1905, and upon this occasion an attempt was made to swing a field of ice across the river to form an ice bridge. This field of ice broke away and choked the channel at the Long Sault to such an extent that the river was filled with ice for 13 miles. Upon this occasion, the tail-water at Waddington rose until the head was only four feet. Since this time it is said that the Federal authorities have had watchmen on the river for the express purpose of preventing the recurrence of such a condition, and there is probably no great danger of its happening again.

Gauge readings extending over a period of 20 years indicate that an average head of 10 feet can be depended upon at all stages of flow under present conditions. This head could be increased 2 feet or more by excavation in the tail race, so that there appears no reason to doubt that a head of at least 10 feet is always obtainable at this point.

The topographical conditions at the site of development are favorable for cheap construction, as the dam will be founded upon solid rock. Also the inlet of the Little River is almost at right angles to the course of the main stream, and as above mentioned the current of the main stream across the mouth of the inlet is 3 to 4 miles an hour. This condition would obviate to a large extent the possibility of any large quantity of frazil, anchor ice, or drift ice finding its way into the head-race of the development. The main difficulty to be anticipated will be the formation of thick ice in the forebay, owing to the necessarily low velocity. This disadvantage could be discounted, however, by a small annual expenditure at such season of the year as the trouble would manifest itself, as the ice would be cut out and floated over the sluiceways. As before mentioned the danger of the rocks or channel being blocked by frazil is not great, but the installation of a heating system along the racks would largely do away with trouble of this kind.

The scheme of development involves the installation of 42-500 kv.-a. units arranged in six groups of seven units each. The grouping of the units and the proposed scheme of control is such that the regulation should be nearly perfect, and the flexibility of the control is conducive to continuous service.

The projected development of 30,000 h.p. will necessitate the enlargement of the channel, but as this can be done to a large extent by dredging, such enlargement need not be completed at the outset, but would need simply to keep pace with the additional installation of generating capacity. The necessity of maintaining

the head at 10 feet will require a very low velocity in the head-race, and while this will involve the use of a large cross section it will be a great advantage in still further reducing the liability of frazil and anchor ice being drawn in from the main channel of the river.

The company claims to have all the necessary legal rights for development at Waddington settled by the authority of the United States Supreme Court and the intention is to acquire the whole of Ogden's Island and the riparian rights on the opposite side of the channel. The purchase of this property should make their titles unassailable, always providing of course that the titles will bear inspection. This is a matter for the Legal Department to take up if thought necessary.

The whole question under this head now turns upon whether or not the natural flow of the Little River under minimum conditions is sufficient to develop the 30,000 h.p. for which the company ultimately intend to instal generating capacity.

During last winter a detailed topographic survey was made of the channel of the Little River. This plan is now completed and is in the hands of Mr. John B. McRae of Ottawa, the company's engineer. The company's claim that the flow of the Little River is adequate for the projected development will require to be proved by the results of this survey.

Under ordinary conditions, a 10 foot head on the St. Lawrence is a dangerous proposition from the standpoint of continuous operation, but the topographical features of the site at Waddington are so unusually favorable that danger of service interruption exists to a much less degree at this point than at any other similar site on the river.

April 3rd, 1911.

REPORT NO. 16.

Goderich.

The natural source of power for Goderich and the neighboring municipalities is the Maitland River, which rises on the height the land between Lake Erie and the Georgian Bay and flows into Lake Huron. The watershed of this river is about 950 sq. miles in extent, and is largely drained and deforested. As a result the natural flow characteristics have been destroyed, and the watershed of the Maitland, in common with the watersheds of other rivers in the south western peninsula, has an uncontrolled run-off which produces heavy spring freshets and a correspondingly low discharge during the late summer and early autumn periods.

The abnormal flow characteristics of the Maitland River to a large extent discount its value as a source of power, in that the watershed is almost entirely lacking in natural storage basins. The country throughout the watershed is cleared and cultivated, so that such regulation by perennial storage as would be necessary to offset the effect of drainage and deforestation could only be established at prohibitive expense for land damages and dam construction.

The power possibilities of the Maitland River can therefore be discussed only on the basis of minimum flow, in conjunction with such advantage as can be derived from local pondage and night flow. In other words it must be considered as a combined 24 hr. and 10 hr. power proposition.

Flow data and gauge-height records are being collected at the present time, but these records are not yet extensive enough to assign any definite value for the minimum flow of the Maitland River, or to establish the duration of the minimum flow period. It will be reasonable to assume, however, that the minimum flow drops to 150 second-feet, and that the minimum flow period has a duration of two months.

The total drop of the Maitland River from head-waters to mouth is about 800 feet, but the characteristics of the watershed are such that no natural heads of any consequence exist, the gradient of the river being uniform and the velocity fairly high. In consequence power can only be developed by diversion, or by the creation of artificial heads, or by a combination of both these methods. This condition, in conjunction with the poor regulation of run-off, has a tendency to make development expensive, with a resulting comparatively high annual cost of power. These two conditions react upon each other in that the development of power in commercial quantities necessitates a high head on account of the small minimum flow, and the high head, in view of the conditions above noted, necessitates heavy expense for the construction of permanent works.

The best site available for development upon the Maitland River is at a location known as the Black Hole, about three miles up the river from Goderich. A head of 80 feet can be obtained here by means of an expensive dam and a diversion across the neck of an ox-bow bend in the river. An additional head of 10 feet can also be obtained by carrying a tail-race about 1,700 feet down the river from the location of the power-house.

In estimating the amount of power capable of being economically developed at this site it has been necessary to make two fundamental assumptions, as follows:—

(1) That the minimum flow is 150 cubic feet per second.

(2) That the present average night load will not exceed 500 h.p.

The contemplated scheme of development involves the construction of a dam about 1,800 feet long across the river valley, having a maximum height of 85 ft. above bed-rock. This dam will create a pond about 700 acres in area, the back-water extending up the river to the Ben-Miller bridge. The intention is to construct an earth-fill dam with a concrete core-wall, and the topographical conditions are such that this fill can be placed at least expense by the hydraulic process.

Under a head of 80 ft., the assumed minimum flow of the river would produce 1,000 electrical h.p. on a continuous 24 hr. basis. Assuming as above, however, that an average amount of 500 h.p. only will be used between the hours of 6 p.m. and 7 a.m., there will be a surplus discharge of 73 second-feet available for night storage. The water thus accumulated when distributed over 10 hours, will augment the normal flow to the extent of 90 sec. ft., making 240 sec. ft. available for 10 hrs. This would produce 1,600 electrical h.p. for 10 hrs. under an 80 ft. head. The pond created by the proposed dam would supply the requisite amount of night storage with a negligible variation in head, and this leads to the consideration of the fact that the area of pondage available will permit the partial storage of local showers. This will be of great assistance in handling abnormal peaks and to a certain extent in helping the plant over extreme low-water periods.

It will be noted that the above estimates of capacity are based on an 80 foot head. This is on account of the fact that the utilization of any additional head will entail considerable expense in tail-race construction. An extra 10 feet of head will increase the capacity of the site about 12½ per cent. but at the outset the generating equipment can be installed to operate under 80 feet, and the additional head can be obtained subsequently when the load conditions are such as to require increased generating capacity.

It has been determined that the cost of continuous 24 hr. power as derived from the Maitland River is rather high, but in view of the fact that this river is capable of developing from 1,000 to 8,000 horse-power at 80 foot head under various conditions of flow a reasonably cheap source of auxiliary supply might effect a very great reduction in the average yearly cost of Maitland River power, by reason of the fact that an independent auxiliary would make it economically feasible to install capacity for the development of additional power at high stages of flow.

There exists in the Niagara High-tension system a source of auxiliary supply amply capable of making good for an indefinite period any shortage in the supply of Maitland River power, and the most important phase of the problem is to determine what the effect will be on the cost of power due to serving the Mitchell-Goderich district jointly or alternatively with Maitland and with Niagara power. The load requirements at the present time are such that the Maitland would probably serve as the source of continuous supply, with the Niagara system performing the function of an auxiliary, but the load requirements of a fully developed market in this district will probably reverse this condition, and the Maitland power will be used as an auxiliary mainly for the purpose of peak regulation.

To arrive at a solution of this important problem, it will primarily be necessary to collect data for the purpose of testing the two assumptions upon which the figures in this report are based. The principal requirements are as follows:—

1. To ascertain the flow characteristics of the Maitland River and the resulting power capacities at different seasons of the year.

2. To ascertain definitely the limitations of the watershed in the matter of artificial storage.

3. To ascertain the economic limit of installed capacity for the generation of power at the Black Hole.

4. To ascertain minutely the load requirements of the municipalities to be served, and also the load characteristics.

5. To determine the cost of delivered power from the Niagara system considered as a separate source of supply.

6. To determine the cost of delivered power from the Maitland system considered as a separate source of supply.

7. To determine the most practical and economical means of making two sources of supply jointly or alternatively available.

8. Finally, based on the above, to determine the resultant cost of power from the combined systems.

In view of the above it is impossible at the present time to submit definite figures, but as regards the Maitland development, an indication of the possibilities can be given by assuming that a plant having a generating capacity of 6,000 h.p. is installed at the Black Hole. From what is known at the present time, it would seem safe to estimate that a plant of 6,000 h.p. installed capacity, operating for one year under various conditions of flow, could deliver the equivalent of at least 3,500 h.p. continuous 24 hr. power. This would seem to indicate that considerable economic advantage is to be derived from the development and distribution of continuous and intermittent power from the Maitland River.

As before mentioned, the extent of this advantage cannot be definitely determined with the data now available and the function of this report is to give a reasonable view of possibilities.

From an engineering standpoint the scheme is quite feasible, and it would seem also to have great possibilities as a commercial proposition.

May 8th, 1911.

REPORT NO. 17.

Beaver River.

The market possibilities of Owen Sound, Collingwood, Meaford and neighboring municipalities are such that their requirements will probably soon exceed the capacity of such local sources of hydro-electric supply as are available, and ultimately the Niagara Transmission System must be called upon to supply any additional demand for power. In the meantime, however, these municipalities should be supplied from a local source if one can be found which will adequately meet the present and immediate future demand for power.

Source of Local Supply.

The Severn, Saugeen and Beaver Rivers comprise what may reasonably be termed the local sources of supply for this district, the Severn being represented by the development at the Big Chute, and the Beaver River by a possible development at Eugenia Falls. Power from the Severn could not be economically supplied west of Collingwood and it is also probable that the Midland-Penetang district will ultimately require all the power which it can supply. The Saugeen River is the only source of local supply for the district which includes the towns of Paisley, Chesley, Port Elgin and Southampton, so that the Beaver River is the only source of supply which can be considered as applying directly to the Collingwood-Owen Sound district. The one development worth considering on the Beaver River is that at Eugenia Falls, and the function of this report is to indicate as fairly as possible, with the data available, the amount of power capable of development and the costs incidental thereto.

Watershed.

The portion of the watershed of the Beaver River which is tributary to Eugenia is about 74 sq. miles in extent, and is situated on the height of land between Lake Erie and Georgian Bay, at an elevation of about 1,800 feet above sea level. The greater portion of the watershed is in the Townships of Artemesia and Osprey in the County of Grey, and is generally cleared and under cultivation, but there is a considerable area of tamarack and cedar swamps. There are also a number of large springs, which would seem to indicate the existence of good ground storage, in addition to the natural surface storage in the swamps. These conditions are advantageous in that good ground storage and sheltered surface storage in the swamps tends to minimize evaporation, which in turn tends to produce a high-run-off factor. Such a condition might be reasonably expected to obtain in the case of the Beaver River watershed.

Precipitation.

There are no rain-fall records in existence which apply directly to the portion of the Beaver River watershed under consideration. The mean annual rain-fall, as measured at several of the nearer Georgian Bay and Lake Huron coast towns, varies between 34 and 38 inches. The mean annual rain-fall at Barrie is about 30 inches, and one year's record at Shelburne shows a rain fall of 32 inches. The Georgian Bay and Lake Huron towns lie about 1,200 feet below, and Shelburne lies 150 feet below the average elevation of the Beaver River watershed. In the first two instances, the difference in altitude would have some bearing on the volume and distribution of rain-fall, but the comparatively small difference in altitude in the case of Shelburne, and the fact that Shelburne is only 20 miles from the

centre of Beaver River watershed, would seem to justify an assumption that somewhat similar conditions would obtain within these limits. On this basis, therefore, the mean annual rain-fall on the height of land at Eugenia should be fully 30 inches, and the minimum probably falls but little below this amount.

Natural Flow Characteristics.

For the past year, ending June 30th, 1911, records have been kept of weir discharge at Eugenia Falls, head measurements having been made twice a day during this period. From the data thus obtained the discharge has been computed and plotted in the form of a curve, from which the following figures are derived:—

Mean Monthly Discharge:

1910.		
July	41.95	second feet.
August	34.89	"
September	28.49	"
October	31.61	"
November	44.10	"
December	35.12	"
1911.		
January	43.46	"
February	49.07	"
March	83.75	"
April	251.98	"
May	92.21	"
June	46.78	"
Mean Annual Discharge	65	second feet.
Minimum Discharge, Oct. 2, 1910	23.0	second-feet.
Maximum Discharge, Apr. 15, 1911	530.0	second-feet.

Based on the above figures, taking the area of 74 sq. miles and the minimum annual precipitation at 30 inches, the watershed would have the following characteristics:—

Run-off—40 per cent. of annual precipitation.

Minimum run-off per sq. mile of watershed—.32 second feet.

Mean run-off per sq. mile of watershed—.87 second feet.

Maximum run-off per sq. mile of watershed—7.2 second feet.

This curve also evidences two important facts:—

1. The mean discharge for the latter half of June, 1911, was 20 per cent. less than the mean discharge for the latter half of June, 1911.

2. There was no noticeably high water in the fall of 1910.

These two facts are intimately related in that the low stage of flow in the autumn of 1910, which was said to be much less than normal, indicates that the greater portion of the flow was drawn from ground storage. The replenishment of the ground storage would therefore occur during the spring flood of 1911, the natural result being a reduction of flood discharge, and a shortening of the flood period. This would account for the fact that the mean discharge for June, 1911, is less than the mean discharge for June, 1910, and it would justify the assumption that the spring flood of 1911 was smaller than usual and probably a minimum. Therefore, the conditions, as evidenced by the data at hand, would be such as to produce a minimum quantity of surplus flow available for storage purposes.

The curve indicates as well that the mean monthly flow exceeds the mean annual flow only during the months of March, April and May. If this is a normal condition it means that the utilization of the total run-off of the watershed will require storage reservoirs of sufficient capacity to impound the entire surplus run-off with one filling and consequently a greater cost for dam construction than would be the case if a fall filling could be counted on.

Power Capacity Without Storage.

There are two schemes of development possible at Eugenia, one involving the building of a dam and about 3,500 feet of pipe-line for an effective head of 400 feet. The other scheme would give an effective head of 450 feet and would require the building of a dam, 1,000 feet of canal or flume, and a 3,500 foot steel pipe-line. Both these schemes will be considered in estimating power capacity.

In estimating the power capacity under natural conditions of flow, it is fair to assume that such dam construction as is necessary for development will have sufficient impounding capacity to equalize daily fluctuations of flow at low stages, and also to provide storage at periods of light load when the total available flow is not required. This being the case, the natural capacity can be based on the mean monthly discharge both for 10 hr. and 24 hr. power.

Using the figures for mean monthly flow, as given in the preceding paragraph, the average monthly output of power at the turbine-shaft would be as follows:—

Month	Continuous 24 hr. power		Mixed 10 hr. and 24 hr. power	
	400 ft. Head	450 ft. Head	400 ft. Head	450 ft. Head
July, 1910	1,525 h.p.	1,720 h.p.	3,130 h.p.	3,600 h.p.
August, "	1,270 "	1,430 "	2,545 "	2,905 "
September, "	1,037 "	1,165 "	1,965 "	2,250 "
October, "	1,150 "	1,295 "	2,220 "	3,580 "
November, "	1,601 "	1,803 "	3,310 "	3,810 "
December, "	1,280 "	1,438 "	2,545 "	2,950 "
January, 1911	1,580 "	1,778 "	3,275 "	3,770 "
February, "	1,782 "	2,005 "	3,750 "	4,300 "
March, "	3,050 "	3,430 "	.....	.....
April, "	9,175 "	10,310 "	.....	.....
May, "	3,350 "	3,770 "	.....	.....
June, "	1,720 "	1,915 "	3,560 "	4,060 "

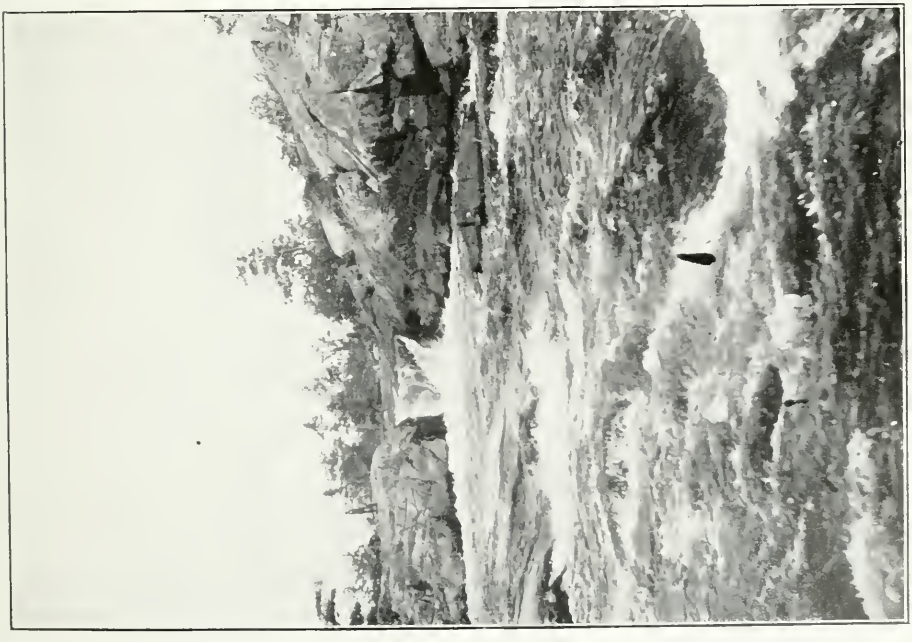
The figures in the above table indicate that on the basis of existing records of flow, the minimum amount of 24 hr. power would be 1,037 h.p., or 1,165 h.p. according to the head developed. The estimate of mixed 10 hr. and 24 hr. capacity is based on the assumption that the average night load for 13 hours will be 400 h.p. On this basis the minimum average commercial capacity of the plant would be 1,965 h.p., 10 hr. power for a 400 ft. head, and 2,250 h.p., 10 hr. power for a 450 ft. head, after allowing for an average night load of 400 h.p.

Storage.

The figures in paragraph 5 show that the mean discharge for the months of March, April and May is 142.6 second-feet, these being the months of high water flow. The mean discharge for the remaining 9 months is 39.4 second-feet. These figures considered in relation to the minimum mean monthly flow of 28.5 second-feet in September, indicate that the power capacity of the stream could be very largely augmented by artificial storage, and when costs are considered it will probably be found that the commercial success of the scheme will be measured principally by the extent to which the annual run-off of the watershed can be economically conserved by artificial means.

Assuming, as above, the existence of a suitable dam at the head-works, the minimum dependable flow, according to the records, is 28.5 second feet. The maximum benefit to be derived from storage would be the production of a continuous flow of 65 second-feet, which has been shown to be the mean annual discharge for the year ending June 30th, 1911.

"Eugenia Falls," Beaver River.



"Big Chute," Severn River.

The ultimate power capacity will, therefore, depend upon the continuous discharge which will be available when the storage has been developed to the economic limit, and will lie between the values given above, being nearer one or the other according as the topographical conditions and construction facilities throughout the watershed are favorable or unfavorable.

Very little information is at hand at the present time concerning the topography of the watershed above Eugenia Falls, and it will require a careful examination before any reliable estimate of storage cost or capacity can be arrived at.

Power Capacity From Storage.

It has been shown that to improve the flow by storage the spring surplus will probably have to be depended upon, as the records indicate that a fall filling of the reservoirs cannot be regarded as a certainty. If the maximum benefit to be derived from storage is considered to be that which will provide a continuous discharge of 65 second-feet then reservoirs will be required which have sufficient capacity to maintain this discharge with one filling in the spring. To accomplish this would require 14,400 acre feet to reservoir capacity.

To obtain this volume of storage in a watershed deficient in lake area, and only 74 sq. miles in extent, would probably entail a greater capital investment than the benefits derived would justify, but one-half at least of this capacity should be obtainable, and two-thirds may be regarded as a reasonable possibility. The table below shows what may be anticipated in the matter of average power capacity under the various conditions:—

Storage Capacity.	Continuous 24 hr. Power.		Mixed 10 hr. and 24 hr. Power.	
	400 ft. Head.	450 ft. Head.	400 ft. Head.	450 ft. Head.
14,400 acre feet	2,360 h.p.	2,660 h.p.	4,930 h.p.	5,600 h.p.
9,600 "	1,820 "	2,050 "	3,580 "	4,120 "
7,200 "	1,455 "	1,635 "	2,710 "	3,140 "

The above figures for 10 hr. power are based on the assumption that the *average* night load for 13 hours will not exceed 600 h.p. The pondage required for night storage under maximum conditions would be about 120 acre feet, and the minimum required would be about 65 acre feet, which the head-works reservoir should be capable of supplying.

The cost of power resulting from the development of storage cannot be determined with any degree of certainty at the present time, owing to the fact above mentioned that there is not sufficient data available with reference to the characteristics of the watershed, but unless abnormally bad conditions obtain, the unit cost of developed power should be reduced as the power capacity is augmented.

It remains, therefore, to determine definitely the economic storage capacity of the watershed, and to ascertain by a detailed examination of the site, and afterwards by comparative estimates, whether the greater expense, if any, involved in developing the greater head will be compensated for by the increased power capacity, considered in relation to the existing market for power and the possibility of its future expansion.

July 14th, 1911.

REPORT NO. 18.

Orillia.

Orillia's municipal power scheme was inaugurated in 1898, when steps were taken to acquire control of the power site at Ragged Rapids on the Severn River, about 20 miles from the Town. Actual construction was begun in 1899, and in 1902 continuous power was being delivered.

From that date up to the present time the history of the plant's operation has been marred by a series of accidents, resulting in serious interruption of service and involving the town in a much greater amount of capital expenditure than the scheme should reasonably carry. The location of the generating plant was the primary cause of the trouble, but a large part of it must be charged to faulty construction and design. The fault with the location is that the gorge in which the plant is located does not allow sufficient room for regulating flood water and properly passing water through the wheels. The restricted cross-section in the gorge was also doubtless responsible to a large extent for the faulty construction of the first dam and the power-house, owing to the difficulty and expense of unwatering, and the subsequent undermining of the outer power-house foundation wall is attributable to the same cause.

It is not necessary to deal here with the system in detail, this being covered by the reports of the Town Engineer under date March 6th, 1911, and March 31st, 1911, respectively. It has been ascertained, however, that the criticisms in these reports have not been exaggerated, and that the one first-class asset at present held by the town is the dam at Ragged Rapids. While it is without doubt improperly located, it is well designed and constructed and capable of performing its functions.

The extent of the present market and the amount of power business actually in sight indicates that by next fall the system, operating at full rated capacity in its present condition, will be quite unable to handle the load, the shortage being conservatively estimated at 900 h.p. The main problem under consideration is, therefore, to ascertain the best means of augmenting the supply of delivered and available power. The supply of delivered power could be augmented by increasing generating capacity and by improving power-factor. The supply of available power could be augmented by the means above specified, and also by metering the domestic service and commercial light.

The conditions in Orillia are such that the installation of meters and the correction of power-factor by means of a synchronous condenser, might reasonably be expected to relieve the situation temporarily. It is to be noted, however, that this method of making good the shortage presupposes a reliable and continuous source of supply. In the case of Orillia, this, unfortunately, does not exist, as the above mentioned reports of the Town Engineer show conclusively. The question of augmented power supply, therefore, resolves itself primarily into an investigation as to the best means of making that supply adequate, efficient and continuous.

The layout at Ragged Rapids is such that additional capacity cannot be efficiently installed without partially shutting down and completely remodelling the plant. This is partly on account of the weakness of the floor structure and the foundation walls, but the fundamental defect is in the design of the tail-race. At present the three wheels discharge into a tail-race of 60 sq. feet cross-section running parallel to the line of the wheels. The draft-tube of No. 1 unit is placed at the lower end of the tail-race, and leaves only about 30 sq. ft. cross-section for

the discharge of No. 2 and No. 3 units. This gives rise to a choking effect which reduces the effective head on No. 2 and No. 3 units from 2 to 4 ft. at full load.

If another wheel were installed to discharge in this tail-race, or if the capacity of the present wheels were increased, the effective head on No. 2 and No. 3 units would be reduced to such an extent as to probably affect their regulation. To install additional capacity in the present plant, a reinforced concrete floor should be substituted for the present wooden one, and the whole foundation plan of the power-house should be altered so that each unit could discharge into a separate tail-race at right-angles to the course of the river. If this method of construction had been followed in the first place, the installed capacity could have been added to from time to time without impairing the efficiency of the units already installed, and the trouble due to the undermining of the foundation walls would have been practically eliminated.

Below the power-house is a series of rapids having a fall of about 10 feet at low water in a distance of 750 feet. At the foot of these rapids is the location which should have been used in the beginning as the site of the dam and power-house. Assuming a 10 ft. drop from the mouth of the present tail-race, and a 4 ft. loss of head in the tail-race itself, in the event of another unit being installed, it is evident that a plant at the foot of the rapids would have an effective advantage of 14 feet additional head over the plant in its present location. This would give the lower plant 40 per cent. more hydraulic capacity with the same amount of water.

The general scheme of development proposed by the town Engineer is the best that could be derived under the circumstances, as it would be folly to adandon the dam as present constructed. In view of this, the flume construction as proposed is the best method of getting water to the wheels. It is to be noted also that the design of the Town Engineer embraces the separate tail-race construction above referred to.

As regards generation, therefore, the point at issue is whether it is advisable to alter and enlarge the present plant, or to construct an entirely new plant on the lower site. From an engineering standpoint, everything is in favor of building a new plant. A financial view of the situation can only be obtained by making comparative estimates.

The annual statement for 1910 shows a revenue of $36,788.34, including a lump sum of $3,950 credited to the power-system for street lighting and water-works pumping.

The annual charges are composed of $18,209.47 in interest charges and debenture payments, and $16,764.48 in operating expenses. The operating expenses include about $8,000 for wages, $7,000 for maintenance and supplies and $3,500 for expenses in connection with the Dolittle suit. These maintenance charges are more than double those for 1907-8 and 1909, so that for a new and remodelled system $5,000 should be ample to allow under this head. The wages account could probably be cut $1,000 under the same conditions, and the $3,500 legal expenses could be eliminated entirely. This would mean a total reduction of $6,500, which would make the total annual charges for 1910 about $28,500. Under these conditions the revenue for 1910 would, therefore, have produced a surplus of $8,300. Assuming a 5 per cent. interest charge, 1.8 per cent. for a 30 year sinking fund, this surplus would pay the fixed charges on $122,000 additional capital investment.

This amount of money would probably cover the cost of remodelling the present system and of such additional generating capacity as is necessary, but it would not cover the cost of an entirely new power installation.

In view of this it would be advisable to have an estimate made based on an alternative scheme covering:—

(1) Remodelling of present power-house and tail-race.

(2) Replacement of one or both of the older units by direct-connected units of larger capacity.

(3) Installation of adequate transforming equipment.

(4) Repairs to transmission line.

(5) Remodelling of substation and distribution system.

This estimate might also include the cost of deepening and widening the channel below the power-house, in order to take advantage of as much of the additional head as is practicable. It would also be necessary to allow for the cost of an additional steam auxiliary in Orillia to carry the load while different portions of the plant at Ragged Rapids were out of commission.

While this scheme is feasible and should give satisfactory results, its main advantage lies in the fact that it appears to be within the borrowing power of the system on the basis of its present revenue, but if the more extensive scheme can be financed, it is unquestionably the best and will give better results in the end. The problem to be faced is the absolute necessity of ensuring the safety of the supply of generated power, and the choice lies between a scheme which will impose a heavy present obligation with a maximum of future benefits, and one which will permanently curtail the hydraulic capacity of the site, but will involve the town less financially.

The gain in hydraulic capacity and the general increase in efficiency under the larger scheme must, therefore, be considered in connection with the additional expense, and it is worth while considering if the industrial future of the Town would not in itself justify the construction of a new plant to utilize the hydraulic capacity of the site to the fullest extent. In the meantime, no definite choice should be made between the two schemes until the respective costs have been accurately determined from the best available data.

The correction of power-factor and the installation of meters are two questions which the town will require to consider as soon as the safety and continuity of the power supply is assured. The synchronous motor for power factor correction can be installed when the pumping station is rebuilt. When connected to a turbine pump it will do useful mechanical work as well as performing its function as a power-factor rectifier. The question of installing meters has been taken up in the report of the Town Engineer, and when the main issue has been decided, this phase of the problem will require careful consideration. It can be shown without doubt in the case of Orillia, as in other municipalities, that the meter system of measurement for light and a combined flat rate and meter rate for power is beneficial both from the consumer's standpoint and the standpoint of revenue.

A careful examination of the Auditor's Reports from 1899 to 1910 has demonstrated the utter futility of attempting to gain from them any reasonably accurate information as to the proper distribution of charges, or the present value of the physical assets. There appears to be no possibility of ascertaining from existing records what the different portions of the plant cost originally, or what money was spent on them subsequently. Items totalling some thousands of dollars have been entered in the Expense Account under the general head of "Supplies."

Small incidental repairs on wheels and generators have been charged to Capital Account, while another item amounting to $650 for new gates has been charged to Expense.

In 1902, $11,000 for waterworks pumps and motors was charged to Power Construction. It is difficult to see why this was not charged to the waterworks. In the 1910 financial statement, the list of permanent assets includes $300,000 as the value of the power system, which is certainly not the true valuation of the system as it stands to-day. A proper system of accounting is a prime necessity for the successful and intelligent management of the Town's power business, and when the generating and distributing plant has bewen renovated and enlarged such a system should be devised and put in operation. In this connection the first step to be taken will be to valuate the improved system and charge the difference between this valuation and the total debenture debt to depreciation and profit and loss.

In conclusion it is recommended that the following programme be carried out in order to put the system on a safe operating and commercial basis, the items being listed in the order of their importance:—

(1) The rebuilding or remodelling of the generating plant.
(2) The repair of the transmission line.
(3) The remodelling of the sub-station and distributing system.
(4) The establishment of a proper accounting system.
(5) The installation of meters.
(6) Power-factor correction.

It may be mentioned that the Town's $16.00 flat rate for power is misleading in that it takes no account of power-factor. For motors of 10 h.p. or over the charge is based on the volt-amperes taken under maximum load conditions, so that the customer is paying $16 per h.p. per year for apparent power and not for real power. The power-factor of induction motors of such sizes as are used in Orillia varies from 50 per cent. for small motors to 80 per cent. for large motors. A 50 per cent. power-factor would make the cost of real power $32 and 80 per cent. power-factor would make the cost of real power $20. This variation of power-factor has the effect of a sliding scale of prices, making the price probably as high as $35 for a small user who has a motor which has spare capacity over maximum load demand, and $20 for a large user whose motor is fully loaded at maximum demand. These prices are not unreasonable in view of the heavy burden of fixed charges which the plant has to carry, but the charge should be made on a proper basis.

With the plant in its present physical condition and the accounting system so inadequate, it is hardly worth while to discuss rates, but when the system is properly renovated and reorganized, the question of rates should have immediate consideration.

May 6th, 1911.

REPORT NO. 19.

Englehart.

Sources of Power.

The nearest available source of power for the Municipality of Englehart is the Blanche or White River, one of the upper branches of which flows within a short distance of the town-site.

Flow Characteristics.

As shown on existing maps, the catchment basin above Englehart is about 230 sq. miles in area, but further than this no great quantity of information is available upon which to base a fair estimate of power possibilities. Messrs. Sutcliffe and Neelands of New Liskeard report 125 second-feet as the result of a gauging November, 1908. If this is assumed as representing the minimum flow, the late winter flow could not be safely estimated at more than 100 second-feet. On this assumption, therefore, the White River at Englehart would produce about 8.5 continuous 24 hr. electrical horse-power per foot of head. The above minimum flow from the above watershed would require a minimum run-off of about .45 second-feet per square mile. For the smaller Laurentian rivers to the south this co-efficient would be too large, but in view of the greater possibilities for ground storage in the clay belt, its acceptance in this case is possibly justifiable.

Available Sites and Capacity.

The White River, between Lot 12, Con. III. of Evanturel, and Lot 3, Con. III. of Dack, has a fall of approximately 134 feet, this head being mainly concentrated in various chutes and falls, the most important being at High Falls on Lot 12, Con. III. of Evanturel, about 2½ miles from Englehart.

By placing a dam at the crest of High Falls an average head of 65 feet could be made available, and a simple scheme of development would produce 550 h.p. continuous 24 hr. power at the switchboard under assumed low water conditions.

Market.

The population of Englehart is, at present, about 663, and within the Corporation limits there are 110 houses, 14 stores, 5 churches, 2 hotels, 1 school, 2 halls, 1 pool-room and a gaol. There is also the T. & N. O. Station, and being a divisional point, there is also a round-house, with small shops in connection. The above embraces the market now definitely in sight, which may be fairly summarized as follows:—

Incandescent lighting	40 h.p.
Arc and Street Lighting	20 h.p.
T. & N. O. Ry.	50 h.p.
Total present load	120 h.p.

As to future market prospects, it may be mentioned that the T. & N. O. contemplates moving a portion of the North Bay shops to Englehart, in which event they would require about 90 h.p.

There is also talk of a grist-mill being established which could probably require 25 h.p. The prospective market would therefore be:—

Lighting load, as above	70 h.p.
T. & N. O. Ry.	90 h.p.
Grist-Mill	25 h.p.
Total prospective load	185 h.p.

There is also a possibility of selling 40 h.p. to saw-mills in the vicinity, and 30 h.p. could possibly be used by the Municipality in the event of a waterworks system being installed. This added to the above would make a possible future load of 245 h.p.

Scheme of Development.

In the event of development, the Municipality's most important customer would be the T. & N. O. Ry., and the characteristics of this load are such as to require continuous and uninterrupted service. Any scheme of development, therefore, should be laid out primarily with this fact in view. In the matter of transmission, the distance is so short and the voltage (2,200) so low, that a single power circuit would seem adequate for present or immediate future service requirements. Interruptions in transmission service are largely due to weather conditions, which can be anticipated and to a large extent guarded against on such a short line, so that a properly constructed single circuit line could in this case be depended upon to give reasonably continuous service. This condition does not obtain as regards the generating equipment. The site is so remote from the factories that an accident to a turbine or generator might result in its being out of commission for weeks. For this reason alone it would be dangerous and not at all advisable to concentrate the generating capacity in one unit.

The minimum 24 hr. capacity of the site has been estimated above at 550 h.p. It would be safe, therefore, to install 600 h.p. capacity for full development. Keeping in view the necessity of installing spare generating capacity, the requirements would be met most economically by a preliminary installation of two units of 150 h.p. each. As one of these units could carry the total prospective load within the limits of its overload capacity, continuous service would thereby be practically assured. When the market developed to such an extent as to require the continuous service of both units, an extra unit could be installed, having a capacity of either 150 h.p. or 300 h.p. as conditions required. This appears to be the best means of insuring continuous service with a minimum of annual cost. The ultimate installation will also gain in flexibility by making it possible to operate the wheels at or near the gate-opening of maximum efficiency.

Estimate No. 1 covers the cost of a first class wooden dam with eight sluice openings, a canal for full capacity with concrete head-gates and head-block, a steel penstock, a concrete power-house, 2-150 h.p. hydro-electric units with the necessary switching and lightning arrester equipment, and a double circuit pole line to Englehart, with single circuit erected.

Estimate No. 2 includes all items of estimate No. 1, and in addition the cost of another penstock, a 300 h.p. hydro-electric unit, extra switching equipment, and a duplicate power circuit to Englehart.

The annual charges in each estimate include interest and sinking-fund charges, maintenance and depreciation, operation, administration and sundries. The average cost of power covers the annual cost of same delivered at line pressure (2,200 volts) in Englehart.

The cost of low voltage distribution has not been included in this estimate, as it is not a fixed item of cost, and installation simply keeps pace with the demand for service. The prospective demand (185) could, however, be distributed for $4.00 per h.p. per year and this price would drop to $2.00 or $1.50 per h.p. per year as the demand approached the hydraulic capacity of the site. This price is, of course, in addition to the annual price of power as quoted in the attached estimates.

Other Sources of Power.

At Charlton, about 7½ miles from Englehart, a 20 foot head has been developed on the south branch of the Blanche River. The plant is owned by K. Farah of New Liskeard and recently he has submitted a draft contract to the Corporation of Englehart covering the supply of light and power. The outstanding features of this contract are:—

(1) The franchise is to be an exclusive one.

(2) The rates set forth in the contract must continue in force for 10 years before any readjustment can be effected.

(3) It is stipulated that the development rights at High Falls, now vested in the Municipality, shall be transferred to K. Farah, he to develop the same at any time or in any way he sees fit.

(4) The contract imposes a six hour time restriction for waterworks pumping, except in case of fire.

The rates quoted are as follows:—

Commercial and House Lighting:—11 cents per kw.-hr., and a discount of 1 cent per kilowatt for "prompt cash payment." Meter rental 25c. per month, up to 5-16 c.p. lights and 1c. per light per month for each meter over 25 light capacity.

Power:—Standby charges, $13 per h.p. per year. Maximum differential, 3c. per kw.-hr. under 25 h.p. Minimum differential, 1c. per kw.-hr. for over 500 h.p.

Street Lighting:—$55.00 per annum for 1,200 c.p. arcs, and $14.50 per annum for 32 c.p. incandescents. These prices are to be paid during the next 10 years and "all subsequent terms."

11 cents per kw.-hr., and a discount of 1 cent per kilowatt for "prompt cash payment." Meter rental 25c. per month, up to 5-16 c.p. lights and 1c. per light per month for each meter over 25 light capacity.

Standby charges, $13 per h.p. per year. Maximum differential, 3c per kw.-hr. under 25 h.p. Minimum differential, 1c per kw.-hr. for over 500 h.p.

Under the above power schedule a customer using 25 h.p. or under would pay $79 per h.p. per year for 24 hr. power on a 50 per cent. load factor, or $51 per h.p. per year for 10 hr. power on a 50 per cent. load factor. At the present time there seems no possibility of any one power customer in Englehart using more than 100 h.p. The price for 100 h.p., calculated as per schedule on the above basis would be $45.50 per h.p. for 24 hr. power, and $31.60 per h.p. for 10 hr. power. On a 50 per cent load-factor basis, this is the very lowest price a power customer in Englehart could hope to obtain under the Farah contract. It should be noted also, that when customers for 100 h.p. are available, the total amount of power sold for all purposes would, without doubt, exceed 300 h.p., in which event, 2,200 volt power could be delivered from High Falls, for an average price of $24 per h.p. per year for 24 hr. power. The average price delivered to the customer should not in this case exceed $27 per h.p. per year.

In conclusion it may be said as regards this contract, that the schedules throughout are very high, but apart from the question of price, the contract conditions, as itemized above, are such that a supply of power so obtained would be dear, even if it were supplied at cost.

Estimate No. 1.

Permanent works for full capacity and 300 h.p. installed.

Capital Cost:	
Dam, Power-House and Permanent Works	$8,360 00
Hydraulic Equipment	5,490 00
Electrical Equipment	7,500 00
Transmission Line	2,785 00
Excavation and Unwatering	5,900 00
Right-of-Way	1,000 00
Roofing, Glazing, etc.	465 00
	$31,500 00
Engineering and Contingencies, 10%	3,150 00
Interest during Construction, 3%	1,038 00
Total Capital Cost	$35,700 00
Annual Charges:	
Interest, 4½% on $35,700.00	$1,606 00
Sinking Fund, 1.8% on $35,700.00	643 00
Maintenance and Depreciation	1,272 00
Operation and Administration	2,000 00
Sundry Expenses	300 00
Total Annual Charges	$5,821 00
Average cost of 2,200 volt power, on basis of 185 h.p. 24-hour power delivered	$31 50

Estimate No. 2.

Full capacity ..... 600 h.p. installed.

Capital Cost:	
Preliminary installation	$31,500 00
Additional Hyld. Equipment	4,490 00
Additional Elect. Equipment	5,500 00
Additional Transmission	1,785 00
	$43,275 00
Engineering and Contingencies, 10%	4,328 00
Interest during construction, 3%	1,298 00
Total Capital Cost	$48,900 00
Annual Charges:	
Interest on 4½% on $48,900.00	$2,200 00
Sinking Fund, 1.8% on $48,900.00	880 00
Maintenance and Depreciation	1,868 00
Operation and Administration	2,000 00
Sundry Expenses	300 00
Total Annual Charges	$7,248 00
Average cost of 2,200-volt power, on basis of 300-h.p. 24-hour power delivered	$24 10

May 20th, 1911.

REPORT NO. 20.

Department of Agriculture.

In March 1st, an Engineer of the Commission was sent up to the Experimental Farm, at Monteith, to look into the possibility of developing a small water-power on the Driftwood River for the use of the farm.

It was found that within one-quarter of a mile or so from the farm buildings it would be possible to develop a 15 foot head. The discharge measured at the time of the Engineer's visit was about 40 cubic feet per second. This measurement, being taken in March, probably at the period of minimum flow, can be assumed as indicating the minimum power capacity of the stream. Under 15 ft. head this amount of flow will develop about 55 continuous 24 h.p. at the wheel. Although not at the present time acquainted with the character of the load to be carried, it is assumed that a 10 hr. service will probably cover necessary requirements. Under this condition it would be reasonable to install capacity for the development of 75 h.p. This, with a wooden dam and power house would probably cost about $9,000.00. A fairly conservative estimate of annual charges would be $1,800.00, which would make the average price for 75 h.p. at the switchboard about $25.00 on a 10 hour basis.

The above will give an idea of the possibilities which will enable the department to judge whether or not it is advisable to take definite steps towards development.

In the event of a decision being made to develop this site additional data will require to be obtained and a more detailed investigation made of the proposition.

May 12th, 1911.

REPORT NO. 21.

Brampton.

Owing to the lack of hydraulic data in connection with the Credit River, and the fact that no load records have been kept, there was no means of accurately determining the capabilities of the site from a hydraulic standpoint. From the attendants at the plant it was learned that the day load would average about 75 amp., and the night load about 15 amp., during the low water season. Assuming that these loads obtained for 13 hours and 11 hours, respectively, the total water consumption during 24 hours, assuming 70 per cent. average over all efficiency for the plant, would be about 5,675,000 cubic feet. This is equivalent to a uniform flow of 66 cubic feet a second, or a minimum 24 hour capacity of 102 h.p. for 19.5 feet, which is said to be the head obtainable at that point. The fore-bay has an area of about 35 acres, giving a capacity of about 1,530,000 cubic feet per foot draft, which is ample for night storage required for the loads assumed above. From what is known of the flow characteristics of the Credit River, 66 second-feet is a high figure to assign for the minimum flow.

In considering the value of the water power to the Town of Brampton, it should be determined whether or not the Town would have entertained the idea of developing a power of 100 h.p., 24 hour power at a probable cost of $200.00 per h.p. It is very doubtful if such a proposition would have been entertained.

In addition to this, the plant as installed is not a first-class piece of construction. The down stream face of the over-flow dam is of timber which will shortly require renewal, and the wheels are set in wooden flumes, the power being transmitted to the generator by means of a jack-shaft and belt.

The transmission line, which is four miles in length, operates at generator voltage of 2,200 volts, and the drop at full load is said to be about 360 volts, so that it would not be possible to operate this plant as a peak proposition in conjunction with the Niagara System until considerable money has been spent on it.

In view of the above facts it does not appear that the Town of Brampton is justified in paying anything for a water-power which they probably would not have developed had it been offered to them in its natural state, or at any rate if they had done so, they would not have adopted the present scheme of development.

It appears, therefore, that any price which is agreed upon as fair should not include anything for the power site, and should be based solely on the present value of the installed plant and system, this value being in turn reduced by the elimination of any items which are not of value to, or cannot be utilized by, the Town.

May 31st, 1911.

REPORT NO. 22.

Huntsville.

Under date of September 13th, 1909, a report was forwarded to the Municipality of Huntsville, dealing with the question of obtaining a supply of Hydr-Electric energy for the municipality. The power possibility of the Muskoka River watershed was fully discussed in this report, and "The Portage" was recommended as best suited for the Town's requirements. Certain difficulties in connection with the navigation interests and the diversion of water were mentioned as reasons for not considering this scheme of development possible, and failing this, High Falls on the north branch of the Muskoka River was recommended as the best source of power. Nothing has since occurred which would justify any alteration in the recommendations as set forth in this report.

The most important development locations in the Muskoka River watershed are listed herewith, as follows:—

Location.	E.H.P. Capacity.	Distance from Bracebridge.	Distance from Huntsville.
South Falls	2,700	3 miles	29 miles
Bracebridge Falls	1,100	.....	.....
Wilson's Falls	930	2 miles	.....
High Falls	1,000	5 "	21 miles

Of the above location Bracebridge Falls and Wilson's Falls have been developed to full capacity by the Town of Bracebridge, 2200 volt, 2 phase equipment being installed in both plants. South Falls has been developed by the Town of Gravenhurst to the extent of 600 h.p., operating at 6,600 volt, 3 phase. High Falls is at present undeveloped.

As regards Huntsville, it will be seen from the above that High Falls and South Falls are the only two locations where power can be obtained by development, as Bracebridge has the other two locations developed to full capacity. It will also be seen from the above that High Falls is about 8 miles nearer to Huntsville than South Falls, which would make a material difference in transmission costs.

The market at present obtainable in Huntsville is said to be in the neighborhood of 850 h.p. The bulk of this power would be used in the tannery of the Anglo-American Leather Company, which, according to the manager, would require 600 h.p., 24 hour power. This tannery was built in Huntsville at the time when hemlock bark was required for tanning purposes. The town of Huntsville was, at that time, in the centre of the hemlock district. At the present time, however, a special liquor is used in tanning, and hemlock bark is no longer required, and it is mainly by reason of the fact that the Company has large and substantial concrete buildings and an up-to-date plant installed, that they are justified in remaining in the Town. This is the condition at present, but it will be necessary in the future to obtain cheap power if this industry is to be retained. It will be seen,

therefore, that the town needs cheap power, not so much to attract new industries, but to hold the ones already located there. This being the case, the first requirement is to locate a site for development which could be developed nearly to full capacity, thus obtaining a minimum annual cost for generation. The estimated minimum capacity at High Falls being 1000 h.p., it is evident that the requirements of the town of Huntsville will require about 85 per cent. of its capacity, so that the condition of a minimum annual cost for generated power would here obtain. To this would be added the additional advantage of a shorter transmission distance than from any other site having the necessary minimum capacity.

If the market in this district ever reaches, say 80 per cent. of the aggregate capacity of the power sites above mentioned, the proper course would seem to be to link them together in such a way as to form a unified system. Until such time as the market demand reaches this stage, however, it would seem quite sufficient to develop High Falls separately for the requirements of Huntsville, to leave Wilson's Falls and Bracebridge Falls connected separately to the Bracebridge load as at present, and to leave South Falls separately connected to the Gravenhurst load as at present, and to allow Bracebridge to procure such additional power as it may require by increasing the development at South Falls, jointly with the Town of Gravenhurst. In the event of the load at Huntsville at any future time exceeding the capacity of High Falls, two alternatives are open in the matter of securing additional power. First, by extending the High Falls-Huntsville transmission line to South Falls, or second, by developing one or more of the smaller powers which are located between High Falls and Huntsville, within one or two miles of the transmission line. The possibility of developing these auxiliary powers has been recently investigated, and it has been ascertained that there is one location on the north branch above High Falls where it would be feasible to obtain a head of 30 feet.

An approximate estimate indicates that a generating plant of 1200 h.p. installed capacity could be built at High Falls for $65,000. Step-up and step-down transformation equipment at High Falls and Huntsville, respectively, could be installed for $19,600. A transmission line from High Falls to Huntsville could be built for $51,600. The total annual charges for generation, including interest and sinking fund, power rental, operation and administration, renewals and repairs and miscellaneous expenses would be $8,500. The annual cost per h.p. would, therefore, be $8.50, on the basis of the minimum capacity of the site, or $10.00 on the basis of 850 h.p. sold in Huntsville. The annual charge on transformation, eliminating the sinking fund charge for five years, would be $1,370, making the annual charge per h.p. $1.37 on the basis of the minimum capacity of the site, or $1.62 on the basis of 850 h.p. sold in Huntsville. The annual charges on transmission, eliminating the sinking fund charge for the first five years, would be $4,450, making the annual cost of power $4.45 on the basis of the minimum capacity of the site, or $5.25 on the basis of 850 h.p. sold in Huntsville. The total cost of power delivered to the low tension busbars in Huntsville would, therefore, be covered by the above items, summarized as follows:—

	1,000-h.p. Capacity.	850-h.p. Sold.
Generation	$8 50	$10 00
Transformation	1 37	1 62
Transmission	4 45	5 25
Total Annual Cost	$14 32	$16 87

The total annual charges after five years would be as follows, after adding the annual charges due to a 25 year sinking fund on transmission and transformation.

Generation . .	$8,500 00
Transformation . .	1,840 00
Transmission . .	5,690 00
Total Annual Charges	$16,030 00

Assuming that, at the end of the five-year period, 1,000 h.p. would be sold in Huntsville, the average cost of 24 hour power delivered at the low tension busbars will be $16.03.

In the above estimates the depreciation charge has been eliminated, but renewals and repairs have been estimated at 3 per cent. on capital cost for transmission and

"High Falls," North Branch, Muskoka River.

transformation, and 2 per cent. on capital cost for generation. These percentages are far in excess of what would occur in actual practice under ordinary conditions of operation. The annual charges also include operation, administration and generation and step-up transformation, together with transmission line patrol.

In the matter of local distribution it will be necessary to adapt the present lines throughout the Town for 3-phase, 60 cycle power. The information obtained with regard to the Town's present system indicates that a safe estimate for a new pole line, built from the plant along Main Street to the swing-bridge and additional copper, insulators, cross-arms, and new transformers erected throughout the Town would be $10,000. This sum includes the cost of building a line and installing transformers for the tannery, and also the cost of a new motor-driven turbine pump. The annual charges for distribution would be $2,800, which sum includes $1,500 assumed as the portion of last year's wage account chargeable to electric service. The

Town could, therefore, deliver 850 h.p. of light and industrial power to the customer from High Falls, for a total capital investment of $75,000 and a total annual charge of $17,120 for the first five years of operation.

Although the discussion of rates is not properly a function of this report, it might be noted that the above figures, considered in connection with the 1910 statement of the Town's electric light system, indicate that if 700 h.p. of industrial load (including pump) can be connected up and sold for $20.00 per h.p. per annum, the following revenue would be available to the Town:—

700 h.p., at $20.00 per h.p.	$14,000 00
Revenue for Electric Light, 1910	8,440 00
Total Revenue	$22,440 00

Against this would be a total annual charge as follows:—

Total Annual Charge on new System	$17,120 00
Annual Charge on Debentures still outstanding against present Electric Plant (say)	2,000 00
Grand Total, Annual Charge	$19,120 00
Revenue as above	22,440 00
Net Surplus	$3,320 00

It seems, therefore, that if the town can realize $14,000 a year from the sale of industrial power, it will also be able to make a reduction in the present lighting rates.

As regards the power capacity of the North Branch of the Muskoka River, it may be mentioned that recently the flow has fallen to about half what has been herein estimated upon. This extreme low water is due largely to the fact that the dam at Port Sydney is being repaired, and it is certain that a well designed dam at Port Sydney, if properly operated, would produce much better flow conditions in the north branch than have existed heretofore. All things considered, there seems no reason to doubt that if the natural storage facilities are properly developed, the run-off from the watershed above Mary Lake will produce from 900 to 1000 h.p. continuous power at High Falls.

September 1st, 1911.

REPORT NO. 23.

Almonte.

The Mississippi River divides in the Town of Almonte into two channels, locally known as the "North" and "South Branch." The South Branch consists of a rocky gorge, through which the stream flows for some 800 feet, having a natural fall of about 51 feet in this distance at low stages of flow. On the North Branch this fall occurs in a distance of about 1800 feet.

Owing to the steep gradient of the stream and the favorable rock formation, the South Branch offered the best natural facilities for power development, but the North Branch carried the bulk of the flow, especially at low stages. Having availed themselves of the natural advantages afforded by the South Branch in the matter of development, the original mill owners subsequently found themselves obliged to divert water from the North Branch in order to supply the water necessary during low stages of flow. This was done by building a low dam, now known as the Chancery Dam, across the head of the North Branch, a few feet west of the present line of Main Street in the Town of Almonte. As originally built, this dam was a crude structure of logs and slabs which was partially destroyed every year by the spring freshet and was renewed and repaired every year when the owners operating on the South Branch ran short of water. The original dam was built some time previous to the year 1824, and was periodically repaired and renewed as above described, until the year 1857. In 1857 the dam was rebuilt in a more permanent manner. The logs and plank were pinned and bolted to bed-rock and the planks were laid close together, making a fairly tight structure.

Up to this date the development of power had been confined exclusively to the South Branch, and one of the industries operating was the woolen mill of Rosamond and Co. Several years after this date, however, they sold out to one Andrew Elliott, and about the year 1866, the Rosamonds started to build a new woolen mill on the North Branch. They built a dam a short distance below the Chancery Dam, and installed auxiliary steam, the plant being in operation in the Fall of 1867.

In the Fall of 1868, when the owners on the South Branch endeavored to put some repairs on the Chancery Dam, the Rosamonds interfered and destroyed a portion of the dam. The resulting dispute ended in a legal action being taken in the name of W. Forgie *vs.* Bennett and Wm. Rosamond. Judgment was rendered in 1871 to the effect that the plaintiff (Forgie) was entitled to maintain the dam in the same condition as it was when repaired in 1857, and an injunction was issued to prevent the Rosamonds from interfering with it. This judgment, therefore, established the right of the parties interested to permanently maintain a wooden dam of the same height as the one placed there in the year 1857, and the Chancery Dam practically became part of the natural bed of the stream.

Across the head of the South Branch a low wooden dam has been built, the crest of which is said to be four inches higher than the crest of the Chancery Dam. From the forebay thus formed water is drawn through three head-races, and the respective rights of parties drawing water from this forebay appear to be established by an agreement or custom of such long standing that it has come to be regarded as mutually binding, being as follows:—

1. The depth of the forebay above the dam on the South Branch is governed by the natural surface of solid rock.

2. The depth of the intakes to the various head-races is governed by the natural surface of solid rock.

3. The width of the various intakes remains unaltered under all circumstances.

4. The owners are entitled to as much water as they can draw through their intakes, defined as above, at all stages of flow.

At low water these three intakes have sufficient capacity to draw the forebay level down one foot or more below the crest of the dam on the South Branch. If the forebay level is drawn down four inches it cuts off the supply of water delivered to the North Branch over the Chancery Dam, it being therefore evident that the owners on the South Branch, drawing water from this forebay have at present the exclusive use of the same during the period of minimum flow.

The low-water head available at present is 53 feet, being the difference in level between water in the forebay above the South Branch dam and water in Gemmill's Bay at the foot of the chute. About 1,500 feet above the South Branch dam and above the fork in the stream another dam is located controlling a head of 7 to 8 feet. It would be physically possible to drown this dam out and raise the level of the South Branch forebay sufficiently to provide a normal head of 60 feet.

From a strictly engineering standpoint, the development of the 60 foot head is the better one for two reasons: (1) Because on a basis of 300 cu. ft. minimum flow it will provide about 200 e.h.p. extra capacity; (2) because by raising the forebay level to the level of the upper river it will afford facilities for night storage which are almost entirely lacking in the case of the 53 ft. head. In addition to the extra 200 e.h.p. continuously available, therefore, the 60 foot development would provide daily storage sufficient to carry a further additional load during peak load hours. The restricted forebay capacity under the 53 foot head would make it necessary to depend upon the natural flow of the stream for peak load requirements, but this latter disadvantage could be overcome to a large extent by arranging with the owners at the upper dam to supply conserved flow from the upper level for peak load purposes when required. This would entail compensation as well as operating costs at the upper dam. These operating costs would be eliminated in the case of the 60 foot development, as the draft on the forebay would then be automatically governed by the requirements of the load.

On the other hand, the 60 foot development will entail considerably greater capital expenditure on account of the additional dam construction, and if it were necessary to decide at once which of the two schemes was the better, a comparison could be made on a cost basis as follows:—

1. Determine the total over-all capital cost of developing the 60 foot head, including damages, legal and promotion costs, and cost of plant for full capacity.

2. Determine the total over-all cost of developing the 53 foot head in the same manner and for full capacity. To which add (1) the capitalized annual cost of supplying peak load storage, (2) the capitalized money value of the additional continuous power which would be available under a 60 foot head.

A comparison of the above totals will then give a fair indication as to which scheme is the more economical.

It is not, however, necessary to make this cost comparison for two reasons: (1) Because the present demand for power in the town of Amonte can be met by developing half the capacity of the site under a 53 foot head; (2) because it is quite feasible, when the demand for power warrants it, to raise the head to 60 feet and make available the additional continuous power and the peak load storage.

The estimates presented herewith will therefore cover only the capital cost and annual charges in connection with the development of the 53 foot head.

The first step towards the consummation of this project would, of course, be to effect a consolidation of the various interests owning or operating on the South Branch, and to place the whole scheme of development under one central control. Under any conditions this control should be vested in the Corporation, but owing to the fact that it now owns the best individual site on the South Branch, the supreme control must come to Municipality, as it will not relinquish what it now holds.

As to the means to be employed to bring about this consolidation, it would seem best for the Municipality to purchase outright such property as is necessary for the building of the plant, and to acquire, also by purchase, all necessary water-rights and privileges: this to be done, however, on the distinct understanding that the industries whose rights have been thus acquired shall in the future be operated exclusively by Municipal electric energy in so far as electric energy is applicable.

It is rather a difficult matter, at the present speaking, to determine just how much electric energy these industries will require to replace the power they are at present obtaining from water. An approximation will be made, however, based on two assumptions, as follows:

(1) That the flow of 300 sec. ft. will provide sufficient power for the industries on the South Branch, such flow being divided according to the respective rights as parties operating thereon.

(2) That the power converted into useful work is in no case more than 50 or 60 per cent. of the theoretical power of the water.

The following table has been compiled on the above assumptions and gives the amount of power each industry can generate with its share of the above flow, and at the head each has available:

Penman Manufacturing Co.	30 h.p.
Golden Fleece Mill	48 "
R. Lee Company	26 "
Municipal Plant	260 "
Almonte Knitting Mill	115 "
Total Hydraulic Power	479 h.p.
Total Hydraulic Power	479 h.p.
Producer Gas Plant	75 "
Total Power required	554 h.p.
Power at Turbine Shaft:	
From 300 sec. ft. at 53 ft. head	1,450 h.p.
Probable quantity delivered to the Customer	1,160 "

Assuming that 550 h.p. is the amount of power required to supply the present market on the South Branch, the surplus capacity of the site, according to the above figures, would be 610 h.p. An initial development of half capacity, say 700 hydraulic h.p. would therefore supply the present demand for power.

The Mississippi River affords exceptional opportunities for artificial storage owing to the large lake area in the upper waters, and the full development of this storage might reasonably be expected to double the minimum flow of the river at Almonte, but in the meantime the town can obtain an ample supply of power for present requirements by developing the available head of 53 feet on the South

Branch to the extent of the natural minimum flow. The attached estimate indicates that the actual cost of development is reasonable, but the final cost of power will, of course, depend upon the amount of additional investment necessary to effect a consolidation of the interests owning and operating on the South Branch.

Estimate No. 1 includes the cost of permanent works for the greatest possible ultimate capacity under a 53 foot head, a penstock of 350 sec. ft. capacity, a standpipe for double this capacity, a power-house with capacity for two 750 h.p. hydro-electric units, and one 750 h.p. unit installed.

Estimate No. 2 includes all of the above and also the cost of two more 750 h.p. hydro-electric units, one a spare, and the cost of the necessary addition to the power-house.

In Estimate No. 1 the cost of power is based upon the assumption that 550 h.p. will be sold, and in Estimate No. 2 the cost of power is based on the assumed quantity of 1,325 h.p., which is the amount of power delivered at the switchboard from a flow of 300 sec. feet under a 53 foot head.

Estimate NO. 1—Half Capacity.

Capital Costs:	
Power-house, Penstock, Standpipe and Permanent Works..	$58,934 00
Hydraulic Equipment, 1 unit	6,960 00
Electrical Equipment, 1 unit	11,000 00
Excavation and Unwatering	10,433 00
	$87,327 00
Engineering and Contingencies, 10%	8,732 00
Interest during Construction, 3%	2,619 00
Total Capital Cost	$98,678 00
Capital Cost per h.p., on basis of 750 h.p. delivered to switchboard	$131 50
Annual Costs:	
Power-house, Penstock, Standpipe and Permanent Works..	$1,155 00
Hydraulic Equipment	348 00
Electrical Equipment	620 00
Total Maintenance and Depreciation	$2,123 00
Interest, 4½% on $98,678.00	4,440 00
Sinking Fund, 1.8% on $98,678.00	1,775 00
Operation and Administration	2,000 00
Total Annual Charges	$10,338 00
Annual Cost per h.p., on basis of 550 h.p. sold	$18 80

Estimate NO. 2.—Full Capacity.

Capital Costs:	
Power-house, Penstock, Standpipe and Permanent Works..	$65,000 00
Hydraulic Equipment, 3 units	20,880 00
Electrical Equipment, 3 units	21,975 00
Excavation and Unwatering	11,433 00
	$119,288 00
Engineering and Contingencies, 10%	11,929 00
Interest during Construction, 3%	3,578 00
Total Capital Cost	$134,795 00
Capital Cost per h.p., on basis of 1,325 h.p. delivered to switchboard	$101 60

Annual Charges:	
Power-house, Penstock, Standpipe and Permanent Works..	$1,300 00
Hydraulic Equipment	1,044 00
Electrical Equipment	1,295 00
Total Maintenance and Depreciation	$3,639 00
Interest, 4½% on $134,795.00	6,060 00
Sinking Fund, 1.8% on $134,795.00	2,423 00
Operation and Administration	3,000 00
Total Annual Charges	$15,122 00
Annual Cost per h.p., on basis 1,325 h.p. delivered to switchboard	$11 40

August 29th, 1911.

REPORT NO. 24.

Rideau System.

Bolingbroke.

The water from the following lakes flows through Bolingbroke into the Tay River, and finally through the Tay Canal into the Upper Rideau Canal:—Carnahan, Kellar, Long, Miller, Leggat, Eagle, Elbow, Buck, Crow, and Bob's Lakes.

There is a Government wood and rock fill dam at the outlet of Bob's Lake at Bolingbroke with a head on July 19th of 7 ft. This dam has one sluiceway with stop logs. There is one foot of fall between it and another dam 450 feet down stream owned by Mr. Dowdell of Bolingbroke. Dowdell's dam is in a dilapidated condition, but is being used at times to supply a saw mill and a grist-mill. Not much work is done in either mill. This dam had a head on July 19th of 7 ft. 3 in. This would make possible a total head at the second dam of between 15 ft. and 18 ft. without doing more damage to farms above than has already been arranged for by the Government. It is understood that at present the Government has a right to build only at or above its present site.

The present Government dam is 81 ft. long, 12 ft. 4 in. wide at the top, and 13 ft. 1 in. from the top of the dam to the creek bed and has one sluiceway 9 ft. 6 in. long with stop logs rising 7 ft. above the sill. Water was flowing over the stop logs on July 19th at an average depth of 9 in. The dam is situated between rocky banks, which rise about 20 ft. above it. Dowdell's dam is frame and rock fill, 24 ft. long with a sluice 5 ft. in length. The water in Bob's Lake could be raised about 4 ft. without doing much damage to surrounding properties.

Lyndhurst.

The water powers owned by Geo. Roddick and Mr. Harvey of Lyndhurst were also investigated, and the following information obtained.

The water here is supplied for the most part by Upper and Lower Beverley Lakes, supplemented in the fall, winter and spring by the surplus from the Rideau Canal through Morton Creek. During the months of navigation no water is taken from the Rideau except that which leaks through the stop-log dam at the Morton Creek outlet of Whitefish Lake.

The Roddick and Harvey dams are situated just south of the Lyndhurst road bridge, the centre pier of which forms part of the dam and is, in fact, the section dividing the two dams. These dams are of irregular shape and built of concrete, Roddick's dam being approximately 60 ft. long with a wing dam of 50 ft., and Harvey's 95 ft. in length. The former has a 14 ft. sluiceway with stop logs, with 7 ft. 5 in. water on the sill. Roddick's has a saw mill and a grist mill running most of the time. The grist mill wheel, a 36 in. Giant, is fed through a 24 x 26 in. gate, and the saw mill through a 17 x 20 in. gate. These gates were running full on July 22nd. Mr. Harvey also owns a saw mill and a grist mill at Lyndhurst. The saw mill is fed through a wood flume, 3 ft. by 4 ft. 2 in. outside, and has a 33 in. Little Giant wheel. The grist mill is fed through a wooden flume 4 ft. in diameter and has two wheels 18 in. and 24 in., Little Giant, respectively. These mills were not running on July 22nd, but it is said that they are run for the greater part of the year.

Harvey's dam has two sluiceways, one 18 ft. and the other 9 ft. in length. The depth of water is about 11 ft., but is not to be taken into consideration as there is a ledge of rock about 200 feet up stream running clear across the channel, and about 3 ft. from the surface. There is a fall of about 17 ft. 6 in. at Lyndhurst.

Bedford Mills.

At Bedford Mills there is a fall of approximately 30 ft. There are three mills being run by water-power:—saw mill, shingle mill, and grist mill—all owned by Tett Bros.

The saw mill is run by a 27 in. Little Giant wheel with a head of 18.7 feet. A flume runs from this lower level to the shingle and grist mills with a head of 11.5 feet, the surplus water from the saw mill being carried off by a waste weir 14 ft. long. The water here was 10½ in. deep on July 20th.

The concrete dam above the saw mill is 60 ft. long and has four gates, one 3ft. by 4 ft. and the other three each 4 ft. by 5 ft. On July 20th there was 10 ft. 6 in. of water on the up-stream side of the dam, and only one gate partially opened. There was no way of finding out what the discharge area was on that date.

The reservoir for the Bedford Mills water power is Devil Lake, and this lake receives its supply from the following:

Garter, Canoe, Elbow, Sand, Eel, Desert, Mud, Knowlton, Otter, Little Clear, Little Salmon and Birch and a few other smaller lakes.

Between the "Narrows" and Kingston there are the following locks and dams:

Station.	Distance between Stations.	Locks.		Dams.	
		No.	Lift.	No.	Length.
Narrows		1	2 ft. 4 in.	1	
	4⅛ miles				
Isthmus		1	6 " 5 "		
	4⅝ "				
Chaffey's		1	10 " 10 "		
	2⅜ "				
Davis		1	9 " 2¼ "	1	270 ft.
	2⅞ "				
Jones Falls		4	58 " 5½ "	1	400 "
	11 "				
Upper Brewers		2	19 " 8 "	1	130 "
	1¾ "				
Lower "		1	13 " 0 "	1	120 "
	10¼ "				
Kingston Mills		4	44 " 0 "	1	176 "
	6 "				
Kingston		0	0 " 0 "		

Locks are 134 ft. long and 33 ft. wide.

The Isthmus is between Upper Rideau Lake and lies between Upper and Lower is the original outlet of Upper Rideau Lake and lies between Upper and Lower Rideau Lakes.

At Davis Locks there is a by-wash 30 ft. long with stoplogs. At Jones Falls on the upper level there is a by-wash 27 ft. long with stop-logs 14 ft. long and 11ft. above the sill. Below the first lock there is a regulating basin with a sluice-way, 2ft. by 4 ft., in a 70 ft. dam. This was running full on July 21st. The water passing over Jones Falls is supplied as follows:

Newboro Lake with its tributaries which comprise that part of Upper Rideau Lake which is used for lock purposes at the Isthmus, the Devil Lake range mentioned previously in the report: Mississagwa Creek range, which comprises Lakes Clear, Slide, Bear, Draper, Indian, North Bay, South Bay and Buck and Little

Lake; Newboro Lake waters join Mosquito, Clear and Indian Lakes, and flow through Chaffey's Lock into Opinicon Lake. Here these waters are supplemented by those from Long, Stonehouse, Upper Rock and Crow Lakes, and a certain part of the surplus from Loughboro Lake during high water, and flow through Davis Lock into Sand Lake and thence to Jones Falls.

There are several means of storing the flood waters above Jones Falls. At Bedford Mills the present dam, which controls the Devil Lake range, could be raised, thus improving Tett's power development there. Also the Mississagwa range could be dammed as it has been in the past. This dam was washed out some time ago and has not been replaced. The water powers at Mississagwa and Bedford Mills are both owned, it seems, by Tett Bros. of the latter place. Also the surplus water from Loughborough Lake, which is twenty to twenty-five miles long, could be made to pass into Opinicon Lake and thence to Jones Falls by raising the present dam at Battersea, and rebuilding the old dam at the northern outlet of the lake.

There is at present at Jones Falls a stone dam built by the Government which is in excellent repair. This dam is in the form of an arc of a circle and is about 400 ft. long and 60 ft. high. There are also four locks.

At present practically all the water passing through Jones Falls reaches Kingston Mills, where there was a head on July 23rd of 44 ft. The flow of water is increased by the surplus from Loughborough Lake, which has its present outlet at Battersea and flows into Dog Lake. There is a fall of about 60 to 70 feet between Loughborough Lake and Dog Lake, and three dams in that distance. Troy, Little Cranberry, Horseshoe, Crow Nest and Mud Lake also augment these waters.

Before the Rideau Canal was built the natural outlet was through Morton Creek into the Gananoque River. However, the Government has built a dam at the head of Morton Creek, and now no water goes that way during navigation season except that which leaks between the stop-logs of the dam. When water is not needed for canal purposes, about two-thirds of the surplus water is allowed to go through Morton Creek. It is said, however, that the Gananoque River has no legal right to this surplus and that therefore the Morton dam could be made to hold back all the surplus water, and that this could be used at Kingston Mills for power purposes. The Morton Creek Dam is 100 ft. long, with a sluiceway 17 ft. 10 in. wide, and a fall of about 16 feet.

July 19th, 1911.

CHAPTER VI.

MUNICIPAL WORK.

MUNICIPAL ADVICES.

Municipal Department.

The Municipal Department is employed to secure the necessary information for the preparation of estimates on the cost of supplying power to those districts desiring it through data collected by surveys of the districts and investigations of the possible power demands. These investigations are made, and estimates submitted at the request of the municipalities desiring power. After a contract for supply of power has been made between the municipality and the Commission, the latter acts as consulting engineer when so requested, and is expected to prepare engineering plans, specifications, call for tenders, and supervise the erection of the necessary material and apparatus. Later, after power is delivered, this Department aids the municipality in building up its power load by acting as a power solicitor, and advising the town and consumers regarding the amount of power necessary and the proper electrical equipment.

The standardization of apparatus, unification of rates and the inauguration of standard accounting systems are also under the direct supervision of the Municipal Department, which is expected to give advice on questions of an electrical nature at the request of any municipality in the province.

The work accomplished by the Department during the period covered by the report is given in detail in what follows; the municipalities being arranged in alphabetical order:—

Acton.

A request was received from the Village of Acton in October, 1911, for an estimate on the cost of supplying the village with energy. Estimates were prepared on the assumption of extending the line at present running to the Guelph Agricultural College, through the Prison Farm at Guelph, to serve Rockwood and Acton. These were submitted on October 23rd.

The clerk of the village advised us on November 1st, that the Council had decided to submit a by-law to the ratepayers of the village, at the municipal election in January, for an authorization to contract with the Commission.

Almonte.

See report on High Falls Distribution and Hydraulic Report.

Athens.

See Report on Eastern Municipalities.

Aurora.

The Chairman of the Electric Light Commission of Aurora forwarded resolution to us on March 22nd, 1911, requesting an estimate on the price of supplying 100 and 150 h.p. to Aurora. Acting in accordance with this request, the entire district adjacent to Aurora, Newmarket, Markham, was examined during the summer, to determine the possible power demand, and a preliminary report submitted emphasizing the necessity of co-operation between the different municipalities in the district, to provide for economic distribution. An engineer was again sent to this district in October, and as a result the authorities of the different municipalities are now planning to present a united demand for power.

Baden.

The Board of Trustees of the Police Village of Baden passed a resolution on June 4th, 1910, requesting an estimate on the cost of supplying power to the village.

Our engineer attended a meeting of the village trustees and prospective power users, on June 17th, in Baden, and advised the trustees as to the action necessary to forward the matter since the police village was dependent upon the action of the township council. The village also required an estimate on the cost of a distribution system.

A contract was prepared and forwarded to them on October 15th, for 150 h.p. at an estimated cost of $31.00 per h.p. per year, at 13,200 volts, together with an estimate of the cost of a distribution system. Several visits were later made by the engineers, but no further action could be taken until a petition had been submitted to the township council. This petition was forwarded to the Commission on April 21st, 1911, together with a request for full information as to the procedure to be followed. They were then advised to proceed in accordance with the Act passed during that winter, providing for the local distribution of electrical energy, and on April 27th our engineer visited Baden, explained the procedure to be followed in accordance with the new Act, and secured complete data for estimates on the cost of power and a distributing system in accordance with this same Act. Several other visits were made to the town; considerable information and forms of model by-laws were also supplied.

The by-law for power which authorized the Board of Trustees to contract immediately for 40 h.p. at 2,200 volts, at an estimated cost of $36.95 per h.p. per year was presented and carried on July 22nd. Plans and specifications for a complete distributing system were prepared, and the necessary material and equipment ordered after a money by-law for $5,000.00 had been presented and carried on October 23rd.

Plans and specifications were also prepared for the sub-station, and sent to the Board of Trustees, who made a local award of the contract. The station was under construction by the close of the year, and arrangements made so that the work could be rushed to completion as soon as the material for the distributing system had been received.

REVISED DISTRIBUTION ESTIMATE FOR BADEN.

		Cost.	Per Cent.	Annual Charges.
45	30 ft. poles, 7 in. tops, erected at $5.00	$225	8	$18
50	6 pin cross arms complete, with braces and hardware, at $1.00 each	50	8	4
300	pins and insulators erected at 25c.	75	5	4
20M	feet of No. 6 B. & S. copper T.B.W.P., at 20c. a lb.	462	2	9
10M	" 8 " " " " 20c. "	151	2	3
	" 4 " " " " 20c. "	334	2	7
3	5 kw. 2200–110 volt trans. erected at $80.00	240	6	14
1	10 kw. 2200–110 volt service trans. at $105.00	105	6	6
42	street lights, brackets, shades, and sockets erected at $8.00	336	6	20
50	house services at $10.00 each	500	6	30
50	house meters at $10.00 each	500	6	30
3	solenoid switches installed at $20.00	60	6	4
		$3,038	.....	$149
	Engineering and contingencies, 10 per cent.	304	.....	15
		$3,342	.....	$164
	Interest during construction, 2 per cent.	67	.....	3
		$3,409	.....	$167
	Lamp renewals	.....	.....	175
	Interest, 5 per cent.	.....	.....	170
	Sinking fund, 30 years	.....	.....	61
		.....	.....	$573
	SUMMATION.			
	Station	800	.....	32
	Line	3,409	.....	573
		$4,209	.....	$605

Beachville.

At the request of the Village Trustees, a representative was sent to Beachville on April 19th, 1910, to confer with their Board and power-users relative to a supply of power for that village. They were advised that it was necessary for the township to take action, and the trustees promised to bring the matter to the attention of the Township Council.

One of our engineers met the Township Council on May 10th, and explained the project to them. Considerable survey work was done during the month of June to locate a supply to Beachville, and an estimate on the cost of 100 h.p. at $28.50 per h.p. per year was submitted on September 1st. A number of the prospective consumers in or near Beachville later requested information regarding the necessary equipment. We were officially notified on December 9th, that the township could not take action.

On January 6th, 1911, in answer to a request, information was again supplied them regarding the cost of building lines at different standard voltages, so that the estimated cost for poling the township might be secured, and on January 14th we received a map from the Township Clerk, with a request for an estimate on the cost of constructing a distributing system to supply the consumers indicated on the map. This map was of great value to us at that time, since the Act provided for the local distribution of electrical energy was under consideration. On February 2nd we advised the Secretary of the Board of Trustees of Beachville that this action was pending. However, the Township decided not to contract, but author-

ized Ingersoll to supply electrical energy to Beachville. Ultimately they decided to avail themselves of the authority granted them in the Power Commission Act of 1911, and accepted an estimate dated June 30th for 100 h.p.

An engineer visited the town a number of times during the summer to secure action, but for one reason or other it was delayed until August 28th, when they advised us that they were drafting a by-law. We assisted them in the preparation of this by-law which was presented and carried on the 20th of October, a money by-law for $5,000.00 having been introduced at the same time. Meanwhile, the Commission contracted for the electrical equipment of the station, as an agreement had already been made with the Standard White Lime Company of Beachville for 50 h.p. at $39.50 per h.p. per year.

We were advised on October 21st that both by-laws had been carried by a vote of 81 to 5, and the proposed contract was then submitted for signature.

Beamsville.

See Report on the St. Anne's District.

Berlin.

The Water Commission of Berlin requested our recommendations in April, 1910, regarding certain types of electrically driven pumps. Investigation was made for Berlin and other municipalities, but no written report submitted.

Our engineer was again sent to Berlin to inspect the electrical installation in the Municipal Station at the request of the Berlin Light Commissioners in Sept. 1910. A number of changes were recommended, sketches made showing the most approved arrangement of installing the high tension work, and a copy of this report submitted on September 13th.

These same Commissioners later, on October 3rd, requested that our Engineering Department act as a consulting body for their Commission.

During the inauguration of the power service in Berlin representatives were sent to assist the local authorities in decorating and also in installing the desired equipment in the auditorium and streets.

The rates which had been adopted by the Light Commission were sent to us for approval in December. These were ratified with a number of unimportant changes; the rates submitted being the standard rates prepared by the Committee of Municipal Engineers. (See Report on Rates.)

On March 3rd, 1911, the Berlin Light Commissioners requested that an engineer be sent to collect data for recommendations as to the rate which the Street Railway Department should be charged by the Electrical Department. Our engineer visited them on March 9th, and submitted recommendations in a report on March 18th.

Further visits were made by our Engineers in order to secure additional information. Other reports were submitted on April 6th, September 7th, and September 29th.

An engineer was sent to investigate the conditions of a large prospective power-user on July 5th. This investigation resulted in a contract for additional power in that district.

Another request was received on August 25th for an engineer to further investigate and recommend the power charge to the Street Railway Department as well as to the other railways purchasing power from the Railway Department of the Light Commission. Recommendations were also requested regarding street lighting, and the advisability of maintaining the municipal gas producer plant.

A complete report was submitted relative to these subjects on September 7th. Our representatives now visit Berlin at regular intervals to secure reports on construction progress, the prospects of power sale, assist in the sale of power, and also to advise on any difficulty that may arise.

Beverley.

See Report on Rural Distribution.

Blyth.

The Clerk of Blyth wrote us on May 2nd, 1911, to ascertain whether or not plans had been made for supplying power to Blyth and the surrounding district. He was advised that the entire district was under consideration, and a complete power scheme being prepared. (See Report on Huron County.)

Brampton.

We advised the Town Clerk of Brampton, on November 15th, 1909, that a request for power had been received from Port Credit, that we had revised the estimates previously submitted to Brampton and Milton, and that the estimated cost of power supplied to Brampton would be $29.75 per h.p. per year. Following our receipt of the application from Port Credit, a number of estimates were prepared to determine the most available location for a station to supply power to the district. Finally, after being advised that Milton could not contract for power, the station was definitely located at Port Credit, and in December the following estimate on the proposed distribution system was sent to the Town Clerk of Brampton.

Estimate on Line Material for 2,200 Volt Power Line, with Total Length of 12,490 Feet.

	Capital Cost.	Per Cent.	Annual Charges.
133 poles with crossarms at $11.00	$1,463	8	$117
400 insulators at 25 cents	100	6	6
18,687 lb. of copper conductor erected at 20 cents	3,737	2	75
Extra line hardware	250	6	15
50 poles for branch circuits at $10.00	500	8	40
550 insulators for secondaries at 10 cents	55	6	3
2,800 lb. of No. 6 copper conductor for secondaries erected at 20 cents (80 lb. per 1,000 feet)	560	2	11
150 wattmeters erected and sealed at $16.00	2,400	6	144
25 lighting transformers with arresters at $100.00 (Power transformers, ratio 2200-575 volts, to be furnished by power users.)	2,500	6	150
	11,565	.....	561
Engineering and contingencies, 10 per cent	1,157	.....	56
	$12,722	.....	$617
Interest during construction, 1½ per cent	191	6	11
Total cost line and service	$12,913	.....	$628
Interest and sinking fund, 5.8 per cent. on $12,913	.....	.....	749
Lost power 20 h.p. at $29.50	.....	.....	590
Total annual charges	.....	.....	$1,967

ESTIMATES ON THE PROPOSED DISTRIBUTING SYSTEM FOR BRAMPTON.

List of Power-Users shown on Map:

1. Williams Shoe Co.	75 h.p.
2. Copeland-Chatterson Co.	75 "
3. Brampton Milling Co.	60 "
4. Colver Co.	25 "
5. Canada Shoe Co.	50 "
6. Brickyards	75 "
7. Finlay & Co.	10 "
Total	370 h.p.

Estimate provides for interest at 4 per cent. and sinking fund at 1.8 per cent. figured for 30 year fund at 4 per cent.

Meanwhile by-laws had been prepared which were presented to the rate payers and passed in January of 1910 after which a contract was signed for 500 h.p. The Money By-law authorized the expenditure of $40,405 for a distributing system but made no allowance for street lighting.

The Port Credit Brick Company's contract, which had been previously signed, was later assigned to Brampton, and the contract with Brampton increased to 1,300 h.p.

In July, at the request of the Mayor, our engineer was sent to Brampton to suggest a location for the sub-station and give advice relative to construction work. The Engineering Department of the Commission was also requested, in a resolution passed by the Town Council, to act as the Consulting Engineer of the town.

Our Engineer was sent to Brampton on November 18th to investigate local conditions, and on November 19th a report was submitted advising methods of carrying on construction. Advertisements were later inserted in the papers for a Station Superintendent, and from the many applicants a superintendent was finally appointed.

The station site was chosen and purchased by the town. Specifications were prepared for the electrical equipment of the Municipal sub-station, and forwarded to the town on January 4th, 1911. Action was taken and we were advised on February 7th by the Town Clerk that the specifications had been approved. Tenders were therefore at once called for.

We submitted specifications for the transformer station on March 15th on which local tenders were requested for its construction. Further tenders received by the Engineering Department were sent to Brampton with comments.

The recommendations of the Hydro-Electric Committee at Brampton were adopted on March 21st, 1911, by the Town Council, and we were requested to place on order the poles and prepare a list of the material required.

We recommended the acceptance, on April 1st, of the tender of the Canadian-Crocker-Wheeler Company for transformers, and of the Canadian Westinghouse Company for the remaining equipment. Contracts were awarded as recommended. Meanwhile, the tender for the building had been awarded to a Brampton contractor, and construction work was started.

Upon our receipt of a request signed by the Council and the owner of the local Electric Light Plant that we make a valuation of the existing system in Brampton, an engineer was sent to take an inventory of the entire equipment.

During the erection of the sub-station and distributing system, our engineer spent at least one day a week in the town. The greater portion of the material required for the distributing system has been ordered, the plans have also been prepared, and the installation of the equipment in the sub-station has been in-

spected. The distributing system is still under construction and our engineer on his weekly visits, in addition to his other duties, interviewed prospective power-users. Weekly progress reports and inspections will be continued until the system is in operation.

The schedule of rates employed at Brampton is a modification of those employed in the City of Toronto, and was adopted on July 11th, 1911, at our recommendation.

Previous to delivery, the transformers for the station were tested at the factory. These tests were witnessed and approved by our engineers before they were finally accepted.

Power was delivered temporarily to Brampton for a convention on August 11th, 1911, but it was not until October 16th that the equipment was ready for continuous service.

Bridgeburg.

A letter was received from the Clerk of Bridgeburg, on March 8th, 1910, requesting an application blank, which was at once sent and formally returned to us on May 13th requesting an estimate of the price of 200 to 500 h.p. delivered at Bridgeburg.

The following estimate was submitted for the cost of 12,000 volt power delivered at Bridgeburg on August 16th:

August 8th, 1910.

ESTIMATE COST OF POWER TO BRIDGEBURG.

12,000 VOLTS FROM NIAGARA STATION.

SINGLE CIRCUIT LINE ON DOUBLE CIRCUIT POLES ALONG THE ROAD, 20 MILES.

Horse Power.	Cost of Power at Falls.	Depreciation, Administration, Operation and Lost Power.		Interest and S.F.		Total Cost per h.p. per Annum.
		TOTAL.	Per h.p.	TOTAL.	Per h.p.	
200	$9.40	$3,419	$17.10	$2,263	$11.31	$37.81
300	9.40	3,538	11.79	2,285	7.62	28.81
400	9.40	3,749	9.37	2,629	6.58	25.35
500	9.40	3,881	7.76	2,651	5.30	22.46
750	9.40	4,606	6.14	3,411	4.55	20.09
1,000	9.40	5,050	5.05	3,824	3.82	18.27
1,500	9.40	6,095	4.06	3,980	2.65	16.11
2,000	9.40	7,012	3.51	4,516	2.26	15.17

Brockville.

See Reports on Eastern Municipalities.

At the request of Brockville Power and Light Department, an engineer was sent to Brockville to investigate the cost of power as generated by steam, and from this data recommend a schedule of prices to be employed for light and power. As a result of these investigations the use of a modified form of the Toronto schedule for the sale of light and power was recommended and sample account blanks were furnished. The town further requested advice on the purchase of transformers and motors for use on their lines, and preliminary information regarding a motor-driven pump with a capacity of five to six million gallons per day.

Brockville Asylum.

See Report on Department of Public Works.

Caistor Centre.

See Report on Rural Distribution.

Caledonia.

See Report on the Cayuga District.

Cardinal.

See Report on Eastern Municipalities.

Cayuga.

Acting in compliance with requests for an estimated cost for power delivered in the district adjacent to Cayuga and Caledonia, an engineer was sent to investigate the power requirements of the towns of Hagersville, Cayuga, Caledonia, Dunnville, and the surrounding districts.

The authorities of the various municipalities were visited, and the majority found to be in favor of arranging with the Commission for a supply of electric power for municipal, as well as for industrial purposes.

The estimated demands were as follows:

Hagersville	153 h.p.
Cayuga and District	594 "
Caledonia	450 "
Dunnville	200 "

Action will probably be taken by these municipalities at the elections in January.

Chatham.

A number of estimates have been prepared for an assumed demand in Chatham in connection with those for Windsor. See Windsor Report.

Clinton.

See Report on Huron County.

Collingwood.

A letter was received on November 22nd, 1909, from the Chairman of the Water and Light Commission of Collingwood, requesting information for use in dealing with a proposition they had received from a private concern to supply

energy to the town. This was supplied them and on April 18th, 1910, a letter was received stating that they wished to purchase a 60-cycle machine and asking us if any of the municipalities in the Niagara District had such a machine for sale. Copies of this letter were sent to the different municipalities advising them to reply direct.

A request was later received from the President of the Board of Trade of Collingwood for an estimate on a supply of power. Correspondence relative to the possible methods of supplying the town followed, and on May 10th we advised them that we were preparing a report on the entire district.

(See Report on Durham District.)

A report on the Electric Light and Water situation in the town, and our recommendations for the present, with the view of ultimately introducing Hydro-Electric power into this section, was requested on August 30th, and an engineer was sent to collect the necessary data for the report.

Courtland.

See Report on Rural Distribution.

Deseronto.

See Report on Eastern Municipalities.

Drumbo.

In reply to an inquiry from a citizen of Drumbo, we wrote on July 7th referring to the method of procedure outlined in the Act respecting the local distribution of electric power. On July 19th a copy of this Act was sent to the Chairman of the Board of Trustees, together with advice as to procedure, and on July 26th a resolution was received requesting an estimate on 25 h.p. Following this and other municipal applications from the same district, an engineer was sent to investigate the conditions. The accompanying report was submitted:

REPORT OF ENGINEER ON CONDITIONS IN DRUMBO AND VICINITY.

On Tuesday, October 31st, and Wednesday, November 1st, 1911, I visited Drumbo, Plattsburg and vicinity. At Drumbo I met Mr. J. A. Mitchell, Secy., Board of Trustees, also the Reeve and a number of prospective users of electrical power in Drumbo, Wolver, Richwood, Blandford and Innerkip. At Plattsville I met Mr. W. E. Baldwin, Secy., Board of Trustees, and a majority of the manufacturers and prospective users of electric power in Plattsville, Washington, Bright, Chesterfield and vicinity. The residents of Drumbo and Plattsville are very enthusiastic over the subject, and wish to secure estimates for a supply of power as soon as possible. Drumbo has applied for 25 h.p. and Plattsville for 130 h.p. I have been able to obtain the following information concerning the municipalities in this section:

Drumbo.

Population 376.

At present using 14 h.p. (steam) and 20 h.p. (gasoline) in the village, and about 50 h.p. (steam) in the near vicinity. The village would require from 15-20 h.p. for lighting, and could probably use a total of from 30-35 h.p.

Plattsville.

Population about 500.

At present using from 175-185 h.p. (steam and water) would probably use from 125-135 h.p. electrical power for constant use, and an extra 35-40 h.p. for intermittent summer use.

Innerkip.

Population 300-400.

At present using 45-50 h.p. (steam) and about 5 h.p. gasoline. The village would require about 20 h.p. for lighting, and would probably need a total of from 25-30 h.p.

Milverton.

Population 100.

The grist mill at present using a combination of steam and water utilizes a maximum of 100 h.p. A cider mill is also using 20 h.p. (steam) and there are three gasoline engines in the village aggregating from 8-10 h.p. The mill would probably require electrical power to the amount of 75 h.p.

Bright.

Population 300.

At present using from 20-25 h.p. (steam). Would probably use about 15 h.p. electrical power.

Richwood.

Population 50.

No power in use except from 4-6 h.p. (gasoline). Would use small amount for lighting.

Blandford.

Population 50.

Same as Richwood.

Washington.

Population 50.

Same as Richwood.

Chesterfield.

Population 50.

Same as Richwood.

Village.	Present Load.	Probable Load.
Drumbo	70— 80 h.p.	30— 35 h.p.
Plattsville	175—185 "	125—150 "
Innerkip	45— 50 "	25— 30 "
Wolverton	120—130 "	70— 75 "
Bright	20— 25 "	10— 15 "
Richwood	..	..
Blandford	..	..
Washington	..	..
Chesterfield	..	..

Dublin.

See Report on Rural Distribution.

Dundas.

A by-law was submitted and approved by the ratepayers of Dundas on January 4th, 1909, authorizing the Council to contract with the Commission for power. No further action, however, was taken until the middle of September, 1910, when the Council requested that an engineer be sent to Dundas to estimate the cost of installing a Municipal Distribution System. In accordance with this request an estimate was submitted to the town on September 17th, giving a total estimated capital cost of $30,109.00.

Additional agitation was again evidenced in September and October, and public meetings held which were attended by representatives who advocated the immediate construction of a distributing system, in spite of such difficulties as an existing contract for street lighting. Representatives were instructed to call on the power-users to ascertain the available market and determine the amount of power which could be sold in the town.

Since the enabling by-law had been passed, it was finally decided to consider a power contract, and proposed contracts were submitted on November 3rd, 1910. These were signed, and returned by the Council to the Commission on November 7th. The contract called for 600 h.p. at an estimated cost of $17.33 per h.p. per year.

The manufacturers in Dundas were anxious to purchase Hydro-Electric power, and it was necessary for our engineers to make a number of visits to Dundas to investigate the requirements of the individual consumers, estimate the amount of power and make recommendations as to the equipment which each would require. It was soon found that it would be necessary to supply the power for a part of this demand immediately, and although the Council had signed the contract for power, they had not passed a Money By-Law, and it was, therefore, necessary to prepare and submit a Money By-Law for $12,000.00 on January 2nd, 1911. This was carried by a large vote.

Meanwhile the Engineering Department was engaged in purchasing the equipment for our Dundas Station, and building a 2,200 volt feeder circuit to Dundas, in order that we might deliver power to a consumer in Dundas, with whom a contract had already been made. All this work was laid out, the material purchased, and construction completed by the Engineering Department. Three transformers stepping down from 13,200 to 2,200 volts were purchased, together with a temporary switching equipment to supply power to the 2,200 volt line. These were completely installed in the Dundas Station within a month and by the first of the year Dundas was supplied with energy.

Despite the fact that the Money By-law had not been passed, it was necessary for the Engineering Department to continue constructing the Distribution System, and soliciting consumers, for debentures had not then been issued, and the town did not have the necessary money to continue the work.

This construction work required the services of a Construction Engineer, a line-gang and a second engineer, the latter spending at least two days a week in Dundas laying out the complete distribution system, and taking care of the engineering work incident to the inauguration of the system. A large amount of work was also taken care of at this time; such as the preparation of reports for the various power-users, visits to the officials of the various manufacturing companies, and the supervision of many details of the distributing system which was to supply these prospective users with power.

A curve-drawing voltmeter was installed in the Town Hall, a superintendent

was engaged to take care of the work in the Town, and standard schedule rates with a local discount of 33⅓ per cent. were adopted.

A contract was placed for the Town to provide for an annual supply of Carbon Lamps, and a report submitted to them regarding the power used by the Bertram Machine Works, tests being made on each one of the motors in the factory.

One of our engineers was instructed to visit Dundas at least twice a week to supervise the power-soliciting and engineering, while a construction engineer had charge of the construction gang, the building of the Distributing System and the connection of the different services for power and light. A large part of the detailed work was handled in this way, the system nearly completed and taken over entirely during the summer, so that, at the present time, the construction work is being looked after by the town, although the engineering, purchasing, planning of extension, soliciting of power, and all other different questions which arise in the operation of every municipal system are taken care of by our engineer who spends at least one day a week in Dundas, which has, at the time of writing, a large number of light users on the system, and a fair number of power users with contracts totalling several hundred horse power.

Dunnville.

See Report on St. Ann's District.

Durham and Durham District.

We received a letter in the spring of 1911 from the Mayor of the Town of Durham asking for an estimate on the cost of supplying from 1,800 to 2,000 h.p. to the Town. We advised them on May 8th that their entire district was under consideration.

A number of requests had also been received from municipalities north and west of Guelph, Stratford and through the Georgian Bay District for estimates on the cost of supplying power to them. Several estimates were prepared on the cost of supplying power to these towns individually, or as small branches of the Niagara System; but later, it was found necessary to treat the district as a whole in order to submit satisfactory estimates to the various municipalities.

During the summer of 1911, engineers were sent into this district to secure information for a report on the conditions existing, available data regarding small water powers and the probable demand for power.

The data secured from these different municipalities are as follows:—

REPORT ON DURHAM AND DURHAM DISTRICT.

Beginning Monday, June 12th, the following municipalities were visited and the accompanying information obtained.

Hanover.

The conditions at Hanover are as follows: The majority of the industries are wood-working and furniture factories using waste or refuse in varying quantities under their boilers for fuel.

The largest plant owners, Knechtel's, state that they have sufficient refuse for all purposes of mill drive as well as for heating their kilns.

The other factories, however, can employ electrical energy in their plants to advantage, and at the same time utilize the refuse for heating their kilns, or other similar purposes, thereby enabling them to install a more economical system, and

employ electric motors to operate their plants more effectively and advantageously as regards output.

Relative to the wood-working plants, it is recommended that all data in connection with wood-working factories in these towns, such as methods of drive, the economical utilization of refuse, with costs, etc., all of which are of great value and material assistance, be collected for future use.

The conditions encountered at the Cement Plant and around town generally indicate that the municipality could seriously consider the employment of Hydro-Electric power.

The town can easily use 50 h.p., and the various industries from 200 to 300 h.p.

Listowel.

The possible load at Listowel occurs principally in wood-working factories, where conditions similar to those at Hanover exist. There has been considerable agitation here relative to the use of Hydro-Electric power, and it was, at that time, receiving careful consideration.

After luncheon on Tuesday, an informal meeting was held, and attended by our representative and six of the leading business men, since the mayor and manager of the Listowel Furniture Company were both absent from town. The industries in the town were visited. The amount of power required by the town alone would, roughly, approximate 50 h.p., and by the industries from 175 to 200 h.p. Attached to these reports is the financial statement of the town for 1910, also rules and regulations relative to their water and light rates.

Durham.

The conditions at Durham are as follows:—

With the exception of the National Portland Cement Works, all the industries in the town are operated by water-powers on the Saugeen and Rocky Saugeen River. There is no municipal light or water works, or sewerage system. The town is supplied with power for light from a water-power development owned and controlled by a plant (McIntyre) situated about two miles away. No franchise is held, and the arrangements to provide for the lighting of the town are made each year with the council.

Mr. Calder, President and Manager of the Cement works, seemed desirous of having Hydro-Electric power supplied to the section and stated that the cement works could utilize from 800 to 1,000 h.p.

The Durham Furniture Company (Dr. Jameson, President, Mr. Catton, Manager) are developing a water power on the Rocky Saugeen, four miles from town, and expect to secure at least 250 h.p. for a 10 hour day. They are installing a 187 kw., 4,400 volt, three-phase, 60-cycle generator. The energy generated will be transformed at the factory to 220 and 110 volts for motors and lights. They expect to have from 75 to 100 h.p. surplus energy for disposal in the town or its vicinity.

The town is now considering supplying power to the Cement Company for a period of years to protect themselves against the loss of this industry and thereby securing cheap power for municipal purposes.

Now that the surrounding municipalities are discussing the feasibility of employing Hydro-Electric power, and the advantages derived by its use for the district, it is probable that Durham will give the matter consideration.

Collingwood.

The population here is 3,500. Mr. J. Currie is Mayor, and Mr. Chamberlain, Chairman of the Light and Power Commission. The town has municipal lighting, power and waterworks plants. The installation consisting of the following equipment:

Water Works.—2 steam pumps, each 1,500 gallon capacity, for 24 hours, installed about 20 years ago.

1 150 h.p. "Abell" engine.

1 100 h.p. "Abell" engine, belt connected to counter shaft, driving a 120 kw. C.G.E. type "A" No. 2776, 1070 r.p.m., 1154/1040 volt single-phase alternator.

1 Chapman and Walker gas producer engine, 104 brake h.p. belt connected to a counter shaft driving a 50 kw., type "A," C.G.E. 1,500 r.p.m., 1154/1040 volt single-phase alternator.

2 Ball Warner arc lamp machines.

They burn some refuse, such as sawdust and cuttings from the planing mill here in addition to coal. The pea coal used for the producer costs them $4.50 per ton. The slack coal used for engines and pumps costs $3.00 per ton.

The switchboard consists of one C.G.E. marble panel and one wooden frame switchboard with old type Royal Electric instruments, etc.

The following industries are located in the town and might use the amounts of power given below:

Crone Brick Works.—This plant has a 30 h.p. boiler, 22 h.p. engine and operates about five months in the year, capacity being 15,000 bricks a day. They could use about 20 h.p. motor output.

Telfer Bros.—Biscuit Manufacturers—could use about 25 h.p. for elevators, etc.

F. W. Bryon.—Planing mill—have two 100 h.p. boilers, one 130 h.p. "Leonard Corliss" engine, and one 25 h.p. engine. They burn approximately 12 carloads of slack per annum at a cost of $3.00 per ton. Considerable refuse is burnt for which there is a market. They could utilize approximately 100 h.p. motor output.

Collingwood Shipbuilding Co.—Have a boiler capacity of from 400 to 500 h.p., and could utilize from 200 to 250 h.p. motor output.

Imperial Steel and Wire Works.—Have two boilers 12 ft. by 72 in., and one Collingwood No. 7 compound engine, the mill being rope driven. They burn approximately 3,000 tons of coal per annum costing $2.55 to $2.85 per ton and operate twenty-four hours a day.

A 54 kw., 125 volt, d.c. Westinghouse Generator is belted to the engine and employed for factory lighting. They could utilize from 100 to 150 h.p. motor output.

Charlton Lumber Co.—Have five 100 h.p. boilers, a 450 h.p. engine, and burn refuse with sawdust, slabs, etc. No demand.

Collingwood Packing Co.—Pork and meat packing—have four 100 h.p. boilers burning ¾ lump coal and sawdust. Coal costs $3.75 per ton. Prime movers consist of one 40 h.p., one 65 h.p., one 100 h.p. and one 220 h.p. engines for operating the refrigerator plant twenty-four hours a day. They burn approximately thirty-two tons a week. However, a large amount of this coal is employed for heating and cooking purposes in the factory.

They state that they could use from 100 to 150 h.p.

Collingwood Milling Co.—Have an 85 h.p. boiler and a 75 h.p. engine. They burn refuse and about four carloads of coal per annum, and operate for about eleven months of the year. They could use from 50 to 75 h.p. motor output.

Burns Manufacturing Co.—Furniture manufacturers—burn part refuse and part coal. They could utilize about 50 h.p. motor output.

Wilson Bros.—Sash, door and hardwood flooring—have two 100 h.p. boilers and refuse. No demand.

Tannery Co.—Have two 50 h.p. boilers and one 35 h.p. engine. They burn slack costing $3.10 per ton, and consume about fifteen tons a week for twenty-four hour a day. They could use from 40 to 50 h.p. motor output.

Dixon Foundry Co.—Have a 15 h.p. gasoline engine. Could use about 10 h.p. motor output.

Attached hereto is the auditor's report and the By-Laws of the waterworks and electric light plant of the Town of Collingwood, balance and unpaid principal on which is $69,745.49. The debenture debt is $468,058.25, local improvements $102,988.02. They are issuing $96,500 for 1911.

Thornbury.

Population 800 to 900.

The following industries are located in the town:

Andrew Estate Flour Mill and Parkinson Cereal Co.—These two companies operate their mills from a water power developed on the Beaver River. Water rights, etc., are owned by the Andrew Estate, and supply about a 12 ft. head and an approximate output capacity for ten months in the year of from 100 to 150 h.p. The dam and flume are constructed of timber, and are in need of repair. The Andrews Estate operates a generator, supplying current for street lighting and residences, their agreement for the street lighting being on an annual contract basis, the town paying approximately $375.00 per annum for nine arc and two or three incandescent lamps, in addition to the lighting of the Town Hall with ten 16 c.p. incandescent lamps. Service is provided from dark to 1 a.m. for residence lighting during the summer months, and in addition throughout the winter months from 5 to 8 a.m. This company also supplies energy for lighting in the Town of Clarksburg, one mile from Thornbury.

Thornbury Transportation and Reduction Co.—(Wood alcohol.) This concern has a large concrete mill located close to the harbour, with approximately 200 h.p. installed boiler capacity. They were bonused by the town with a loan of $10,000 for a twelve-year period, but the company is not exempt from taxation.

The mill is not operating at present because of the scarcity of wood for process, but will probably start up again this fall. They might possibly be able to use from 75 to 100 h.p. motor output.

Herald Printing Office.—3 h.p. motor output.
Evaporating Company.—75 h.p. motor output.
J. H. Brown.—Baker and confectioner, 5 h.p. motor output.
R. Conn.—Seed merchant, 5 h.p. motor output.
Gilson.—Butcher, 3 h.p. motor output.
T. Idle.—Undertaker, 3 h.p. motor output.
Knetsinger Planing Mill.—Could use 5 h.p. motor output.

The amounts of power which we estimated could be taken by these different towns are tabulated as follows:

Municipality.	h.p.
Mount Forest	100
Harriston	150
Palmerston	250
Listowel	250
Durham	500
Hanover	300
Meaford	250
Thornbury	125
Collingwood	750
Owen Sound	1,200
Shallow Lake	1,000
Wiarton	600
Total	5,475

From this information, a number of estimates were prepared on the cost of supplying power to the district, assuming different sources of supply, various transmission voltages, and different combinations of load.

Considerable time was spent on this work, since the district is large and the distances of transmission were too great for the ordinary voltages in use. Special standards also had to be designed for the work, so that it is really impossible to fully explain the mass of detailed labor which these estimates required.

It is, therefore, necessary for the municipalities to co-operate and take united action to provide for a distribution system. It was suggested that the municipalities vote on by-laws at the Municipal Elections in 1912. Probably the majority of them will follow this suggestion.

Eastern Municipalities.

As a result of considerable agitation relative to supplying power to this district, a meeting was held in Brockville on December 14th, 1910, and attended by representatives from municipalities situated between Napanee and Morrisburg as well as by a representative of the Commission. A resolution was unanimously passed requesting the Commission to submit estimates on the cost of power in the following amounts:

Napanee	200	h.p. to	300	h.p.
Kingston	1,200	"	1,800	"
Lansdowne	100	"	150	"
Brockville	1,000	"	1,500	"
Lyn	150	"	225	"
Prescott	500	"	750	"
Cardinal	100	"	150	"
Morrisburg	2,000	"	3,000	"
Athens	75	"	100	"

Previous to this, requests for estimates had been received from several of these municipalities, but due to the lack of co-operation no satisfactory method of supply could be developed for them. Steps were also taken at this meeting to form an active union so that the matter might be forwarded and the power demands of that district supplied at the earliest possible date.

A number of estimates were accordingly prepared for supply power from a development at Waddington, N.Y., with which the Commission had secured an optional contract.

During the summer, engineers spent several weeks investigating the conditions in the district, and from their reports we found that the municipalities could safely figure on the following amounts of power for immediate use:—

Morrisburg	1,500 h.p.
Brockville	750 "
Prescott	500 "
Kingston	2,500 "
Gananoque	Uncertain, owing to water power.
Lyn	150 "
Athens	50 "
Lansdowne	50 "
Napanee	250 "

The other municipalities in the district require so little power that their demands may be properly classed as a "Rural Demand."

A number of possible methods to provide for the transmission and supply of power from other localities were also considered at the same time and many prospective consumers were interviewed in order that a basis might be arrived at on which estimates of the cost of supplying power could be drawn up. The opinions of different citizens of the municipalities were obtained in order to definitely determine whether or not the demand which existed was occasioned by both light and power users or only those requiring power. We found, however, that the demand was common to all, and as a rule, all desired to improve the commercial conditions in the towns by securing an ample supply of cheap power

The eastern municipalities, with the exception of Napanee, were strongly in favor of purchasing power from the Hydro-Electric Power Commission. The latter alone accepted an offer from a private corporation for their municipal lighting plant, and gave this corporation a franchise for the distribution of light and power in the town. Kingston was also made a similar offer by the same company, and their consideration of this offer, together with their inclination to compare the advantages of a commercial proposition with those of a municipal department, caused considerable delay in the negotiations with the other towns. However, revised estimates were prepared from which some of the municipalities were omitted, and sent forward, together with a blank form of by-law enabling the councils to contract for power on October 19th, to the municipalities mentioned below:—

Municipality.	H.P.	Cap. Cost per H.P.	Cost of Power plus Administration, plus Operation, plus Lost Power.	Plus Interest, 4 per cent.	Plus Maint., 1 per cent.	Plus Sinking Fund, 1.8 per cent.	Plus Depreciation.
Kingston	3,000	$127.86	$19.00	$24.11	$25.39	$27.69	$30.25
Brockville	750	75.60	17.83	20.85	21.61	22.97	24.48
Lyn	150	158.10	20.34	26.66	28.24	31.09	34.25
Morrisburg	1,200	4.33	12.69	12.86	12.90	12.98	13.07
Cardinal	100	68.78	14.82	17.57	18.26	19.50	20.88
Prescott	200	151.32	17.40	23.45	24.96	27.69	30.72
Total	5,400						

Municipality.	H P.	Cap. Cost per H.P.	Cost of Power plus Administration, plus Operation, plus Lost Power.	Plus Interest. 4 per cent.	Plus Maint.. 1 per cent.	Plus Sinking Fund 1.8 per cent.	Plus Depreciation.
Kingston	4,000	98.47	16.17	20.11	21.09	22.86	24.83
Brockville.....	1,100	54.91	16.05	18.25	18.80	19.79	20.89
Lyn	200	116.81	18.00	22·67	23.84	25.94	28.28
Morrisburg	1,400	3.90	12.17	12.33	12.37	12.44	12.52
Cardinal.....	150	48.90	13.65	15.61	16.10	16.98	17.96
Prescott.....	300	103.92	15.50	19.66	20.70	22.57	24.65
Total.....	7,150						
Kingston	5,000	81.38	15.03	18.29	19.10	20.56	22.19
Brockville.....	1,500	42.88	14.72	16.44	16.87	17.74	18.60
Lyn	250	92.40	16.31	20.03	20.96	22.61	24.46
Morrisburg	1,600	3.41	11.66	11.80	11.83	11.89	11.97
Cardinal.....	200	36.75	12.89	14.36	14.73	15.39	16.12
Prescott.....	400	78.02	14.40	17.52	18.30	19.70	21.20
Total	8,950						
Kingston	7,500	58.73	13.91	16.26	16.85	17.91	19.08
Brockville.....	1,500	36.70	14.10	15.57	15.94	16.60	17.33
Lyn	250	86.22	15.68	19.13	19.99	21.54	23.27
Morrisburg.....	1,600	3.41	11.16	11.30	11.33	11.39	11.46
Cardinal	200	36.75	12.37	13.84	14.21	14.87	15.60
Prescott.....	400	78.02	13.86	16.98	17.76	19.16	20.72
Total.....	11,450						
Kingston.....	10,000	48.76	13.51	15.46	15.95	16.83	17.80
Brockville	1,500	33.82	13.98	15.33	15.67	16.28	16.95
Lyn	250	83.34	15.58	18.91	19.74	21.24	22.91
Morrisburg.....	1,600	3.41	11.16	11.30	11.38	11.39	11.46
Cardinal.....	200	36.75	12.37	13.84	14.21	14.87	15.60
Prescott.....	400	78.02	13.86	16.98	17.76	19.16	20.72
Total.....	13,950						

Elmvale.

A resolution was received from Elmvale on June 13th, 1911, requesting an estimate on the cost of supplying them with 100 h.p. from the plant of the Simcoe Railway and Power Company.

A number of estimates were prepared on the cost of supplying 2,300 volt power, constructing a sub-station and installing the necessary equipment.

Elora.

See Report on Fergus.

Fergus.

A request for an estimate on a supply of power from Guelph was received from the Town of Fergus on January 2nd, 1911. An engineer visited the town to investigate their power requirements, and found that a demand existed there for about

200 h.p. We advised the Mayor of Fergus on April 14th that our estimated cost for this amount of power was $35.25 per h.p. per year for Fergus and Elora, assuming that Fergus would take 200 h.p., and Elora 150 h.p. On April 21st, a request was received from the Clerk of the town asking for an explanation of the manner in which this estimate had been drawn up. An explanation was submitted on April 26th.

Galt.

At the request of the Town of Galt, an engineer having no connection with the Hydro-Electric Power Commission made a valuation of the plant and equipment of the Galt Gas Lighting Company prior to its purchase by the town. The details of this valuation were examined by an engineer of the Commission, and several visits were made to the town to assist in the negotiations. Arrangements were finally made whereby the town agreed to purchase the poles and wires from the company.

Our Engineering Department was appointed consulting engineer for the town in connection with the recently purchased system and its adaption to Hydro-Electric power on April 14th, 1910. Our engineer later visited the town to make a careful study of their requirements relative to the distribution of energy for power and light, street lighting, and the water works system.

Specifications were prepared for three 150-kv-a. transformers, the necessary switching and line protective equipment and three series street-lighting equipments with a capacity of two hundred lights each.

After tenders had been received for this material, they were compared in detail, recommendations made, and contracts awarded for the supply of the three transformers to the Packard Electric Company, the line protection and the street lighting equipment to the Canadian General Electric Company, and switching equipment to the Canadian Westinghouse Company.

Advice regarding the arrangement of this equipment in a building supplied by the town was given, and plans prepared covering the complete layout. During the installation of the apparatus our representative visited Galt at regular intervals to supervise the work and give whatever instructions were necessary. Reports on the progress of construction as well as plans for the power distributing and street lighting system were supplied to the local superintendent, together with the necessary instructions.

After the equipment had been installed, a careful inspection was made of the entire layout. Power was first supplied to Galt on March 15th, 1911, their load during the first month of operation being 80 h.p., and for the last current month 335 h.p.

The subject of the rates to be charged by the town for energy utilized for power and light was carefully investigated and the standard schedule finally recommended. Our representative now visits the town at least once a week, and, while there, is at the service of the municipality to give advice on any engineering problems that may present themselves in connection with their distribution system or the sale of power. He also visits prospective power consumers for the purpose of discussing with and explaining to them the system of charges employed, and is furthermore expected to go into the details with customers regarding methods of driving their machinery, etc., and whatever additional information they may need.

A great deal of soliciting for customers has been done for the town, and the increased power load in Galt is very satisfactory.

Gananoque.

See Report on Eastern Municipalities.

Georgetown.

The power demands of Georgetown were investigated in connection with those of Acton and Rockwood, and some time was spent by our engineer in ascertaining the requirements of the former. No action was taken by the municipality.

Goderich.

The Secretary of the Board of Trade of Goderich requested on December 5th, 1910, a report on the estimated cost of development and the probable amount of power which could be developed on the Maitland River near Goderich. Final action was taken by the Council of Goderich on January 20th, 1911, when formal estimates were requested. Engineers were, therefore, sent to Goderich to investigate the probable power load, the power in use in Goderich and the surrounding district, possible power sites, etc., and also prepare estimates on the cost of development. The report on the power development will be found in the report of the Hydraulic Department.

It was found that the probable load in Clinton would be 250 to 400 h.p., and in Goderich from 300 to 500 h.p.

A large number of estimates was prepared on the assumption of supplying them with power developed on the Maitland River and tying in this system with the Niagara system by a line through Stratford, so that power could be supplied from the latter during periods of low water on the Maitland River. However, owing to the necessity of securing gauge readings on the river during the various seasons of the year, this information is not, as yet, available for the municipalities interested.

The Huron County Council was also very much interested in the proposed development on the Maitland River, and suggested that the County develop this power and transmit it throughout the district. In order to determine the probable demand of this section, an engineer visited all of the municipalities and investigated power conditions in each. The data secured are given in the Huron County Report.

Grantham.

See Report on Rural Distribution.

Grimsby.

See Report on St. Ann's District.

Guelph.

Although the City of Guelph has its own staff of engineers to supervise the installation of the electrical equipment and distributing system, nevertheless the specifications for all apparatus operating on Hydro-Electric power were carefully examined and approved by the Engineering Department of the Commission before contracts were awarded.

Arrangements were also made whereby the city were permitted in install part of their apparatus in the Commission's transformer station, an arrangement which

resulted in a saving in equipment and number of operators as well as making unnecessary the construction of a special building to house this apparatus. Various supplies required in connection with their distributing system, such as poles, wire, insulators, etc., were purchased from the dealers, by the Commission, for the Board of Light and Heat Commissioners, at a reduced price.

After the city's equipment had been installed, a careful inspection was made of the layout prior to the delivery of power, which was first supplied Guelph on November 13th, 1910. The maximum load taken during the first month of operation was 248 h.p., and for the last current month 898 h.p.

Guelph Agricultural College.

See Department of Public Works.

Hamilton.

Under the original special agreement with the City of Hamilton for 1,000 h.p., the city agreed to act as a customer and not as a full partner with the other municipalities.

On July 25th, 1911, in the face of great opposition, a by-law was passed by the ratepayers of Hamilton authorizing the Council to enter into a new contract with the Commission, whereby the City of Hamilton should enjoy full privileges with the other municipalities. A Money By-law was also passed at the same time authorizing the city to issue debentures to the amount of $500,000.00 to cover the cost of a municipal distributing system, the construction of which is now under way, a new contract having been signed.

The rates used are similar to the standard schedule with slight modifications. Contracts are now being made with power-users, and there are good prospects for a large demand in Hamilton.

Hamilton Asylum.

See Department of Public Works.

Hanover.

See Report on Durham District.

Harriston.

See Report on Durham District.

Hespeler.

The Engineering Department, acting in the capacity of consulting engineer, sent a representative to Hespeler in December, 1909, to investigate the local conditions, and secure the necessary information for an estimate on a transforming and distributing system.

From the data obtained, specifications were prepared for three 100 kv-a. single phase transformers 13,200/6,600/2,200 volts, one 85 kv-a. synchronous motor and the necessary switching equipment for their operation and control. The specifications were submitted to the town for their approval, after which, on January 4th, they were sent to various manufacturers who desired to tender on the items. The tenders, when received, were compared and forwarded to the Chairman of Fire and Light Committee with our recommendations. The contract was finally awarded to the Canadian General Electric Company.

The specifications of material for the distributing system were also referred to our engineers, and recommendations made in accordance with which supplies were purchased. The installation of the sub-station equipment was under our supervision, and the entire layout given a thorough inspection prior to being placed in operation.

Power was first received in Hespeler on January 15th, 1911. The maximum amount taken during the first month of operation was 87 h.p., while during the month of October their maximum load reached 101 h.p.

Our engineer visits Hespeler once a week, and during these visits is at the service of the Fire and Light Committee to suggest a solution for any engineering problems which may arise. He also interviews prospective power-users, and explains to them the details of the charging system, makes recommendations regarding the customers' drive, and if necessary, makes suggestions in connection with extension of the distributing system, as well as taking care of any other details that may arise.

High Falls Distribution.

At the time we investigated the possible methods of supplying the municipalities situated between Napanee and Morrisburg, (See Report on Eastern Municipalities) it was thought advisable to report on the possible supply of power from High Falls near Calabogie to Kingston and the eastern Municipalities.

The district through which the line might be built was surveyed and our engineer spent considerable time investigating conditions in the different municipalities including the mines adjacent to these municipalities. The result of these investigations is given in the following report:—

REPORT OF KINGSTON AND DISTRICT NORTH TO CALABOGIE.

On Monday June 26th, I arrived in Kingston and proceeded to investigate industrial needs, etc., in the districts north of here as far as Calabogie, that might be supplied from the development at High Falls on the Madawaska River. The following places were visited, and conditions found to be as follows:—

Harrowsmith.

Population 400 to 500: 125 houses, four stores, one bank, one hotel, K. & P. Railway and G. U. Railway. The industries here are as follows.—

W. J. Camsill. Sawmill and Cheese Box Maker. The output of this factory is 200 to 300 boxes per day, factory operates ten hours per day seven months in the year. At present there is installed a 25 h.p. boiler and a 25 h.p. engine. Refuse from the factory is utilized as fuel. A 25 h.p. motor might be installed.

A. Brassau. Cheese Factory. This factory is operated by a steam power plant, having a capacity of 25 h.p. Steam is required here for process. The factory operates ten hours per day eight months of the year. They could employ a 5 h.p. motor in this factory.

J. S. Gallagher. Feed Mill. The power used here is supplied by a 15 h.p. gasoline engine operating five hours per day eight months of the year. A motor of 7 h.p. could be used.

The village itself could utilize about three hundred incandescent lights for residence and street lighting purposes. The total probable load for the village covering the lighting and power requirements would be about 42 h.p.

Sydenham.

Population 600. A meeting was held in this village and attended by the Reeve, the Council of the township, consisting of five members and four business men.

The industrial conditions here are as follows:—

The Woodruff Sawmill and Feed Mill. Manufacturers of Flour, etc. This company owns and operates a development at the outlet of Sydenham Lake, with a fourteen foot head, driving three 24 in. Samson-Leffell wheels operating the feed mill, and one 36 in. Giant Wheel operating the sawmill. The head works are constructed of timber and are in need of repair. It is probable that a development to provide 60 h.p. throughout the year could be made here. Water rights however, are held by the Woodruff Estate, and cannot be disposed of before the end of the present year.

Birch Lake Mining Co. This company operates a mica mine four miles from the village. Their present power plant consists of a 20 h.p. steam installation. They could use approximately 10 h.p. motor output in addition to about 50 incandescent lights.

Loughboro Mining Company. This company operates a mica mine three and one-half miles from the village. Their power plant consists of two 80 h.p. boilers (140 h.p. required in the summer), one eight drill compressor, and a hoist elevator of 20 h.p. capacity. The output of this mine is about 8,000 pounds per week, 40 men being employed. Their cleaning plant, etc., is located in Ottawa. The former plant operates ten hours per day twelve months of the year. Electrical power might be employed for lighting purposes only, since the steam plant is required for heating drills, etc. Three or four hundred lamps, however, might be used in the factory, and about five hundred in the village. The requirements here are about 60 h.p.

We are told that cheap power would give impetus to the further development of the present mines as well as the operation of other mines in that immediate district.

Yarker.

Population 300. Two companies supply power for lighting to the village, but have no arrangement with the township, and place the poles and lines where they choose. They own and operate a water power consisting of two plants located on opposite sides of Napanee River. The generating capacity of each plant is about 15 h.p. Energy is generated at 110 volts d.c. The principal industry is J. Wright's factory and carpenter shop, employing water power purchased from one of the above companies, which could use about 10 h.p. of motor output. For street and house lighting within the village about 30 h.p. would be required, making a total demand for the municipality of about 40 h.p.

The Napanee River Improvement Company practically controls the flow of the Napanee River by a system of reservoirs in the Townships of Hinchinbrooke and Portland. Each water-right holder is interested and practically a shareholder in above company. It is reported that the interests of this company are to be taken over in the near future by an electric development company operating in this section.

Napanee.

Population 3,500. The town owns and operates its electric plant, steam power being used. The plant was built in 1905, and consists of the following

property, Real Estate, 66 ft. by 200 ft.; a one-storey stone and concrete building 35 ft. by 75 ft.; two 18 ft. by 72 in. Robb Armstrong boilers; two 16 in. by 20 in. 150 r.p.m. Robb Armstrong engines belted to two Allis Chalmers Bullock, 125 k.w., 2,300 volt generators; a four panel switchboard, two Adams Bagual constant current regulators, 2,500 volt 60 cycles, 6.6 amperes, operating thirty-eight arc and thirty 60-watt series Tungsten Lamps. The plant also supplies lighting service from sunset to sunrise to two hundred and seventy-five customers.

The industries in Napanee are as follows:—

Dominion Rock Drill Company. The power plant has a capacity of 50 h.p. generated by steam; the plant operating continuously ten hours per day. At the present time, 30 h.p. could be utilized, which in time, might be increased to about 50 h.p.

Craig Feed Mill. The power equipment consists of a 45 h.p. Fairbank's Gas Producer equipment which is operated ten hours per day for nine months of the year. This plant has been in operation less than twelve months.

R. Light. Sawmill. This plant is operated by a 40 h.p. engine and a 50 h.p. boiler; refuse from the mill is used for fuel. This refuse could be marketed to advantage, although some steam is required for heating purposes in the mill. A load of about 15 h.p. for an eight hour service for twelve months of the year could be employed.

Napanee Canning Company (Merged with the Dominion Canning Company). This company requires approximately 60 h.p. from nine to ten hours per day during five months of the year. Heat is required for cooking, etc. About 20 h.p could be used here during three or four months of the year.

From these data, we found that a total load of about 135 h.p. is at present required, which could be easily increased to 250 h.p.

Verona.

Population 150 to 200. At the present time there is one mine, producing felspar, in operation about two and one-half miles west of the village. A 25 h.p. steam plant is employed which operates ten hours a day throughout the year. They plan to increase their capacity to 60 h.p. in the near future.

The "Big Mine" located at Dessert Lake, also a felspar proposition, has a 75 h.p. steam installation. This mine is seven miles from Verona. Both of these mines are owned and operated by the same company and could at present utilize approximately 50 h.p.

Sharbot Lake.

Population 300. The only industry located here is one sawmill with a 35 h.p. steam installation. There is practically no demand for electrical energy.

Wilbur.

The Exploration Syndicate, Limited, are operating a magnetite mine here and have installed a steam plant of 150 h.p. capacity. Wood is used principally as fuel at a cost of $2.00 per cord. The mine is in the developing stage, and at the present time, could use approximately 50 to 75 h.p.

Folger.

The principal industry of the village is Lawrence Bros. Sawmills. Their existing power installation consists of four 80 h.p. boilers and two engines. It is

quite probable that from 50 to 75 h.p. could be used here now and a still greater amount when additions are made to the plant. The street lighting load of the village would be very small, from 50 to 75 incandescent lamps being required at the most. For the present requirements 50 h.p. may be safely considered necessary.

Calabogie.

The industries here are as follows:—

Carswell Company. Sawmill Operators. This mill has a steam installation of approximately 150 h.p. capacity. It has not, however, been operated for the past three or four years. The owners stated that with the introduction of cheap power, the mill would again be placed in operation and that about 100 h.p. motor output would be employed.

Mr. T. J. Colwell. Has three mines that are being developed near Calabogie, which could utilize about 300 h.p.

Black-Donald Graphite Company. This company has been in operation for the past eight or nine years, and is situated fourteen miles from Calabogie. They develop power at a mountain chute on the Madawaska. The plant now in operation has a capacity of 600 h.p., and there is still sufficient surplus power available there to provide for any extension they may make. In addition to graphite, iron ore, marble and copper are being mined to some extent.

The present demands require at least 400 h.p.

Smith's Falls.

The industries here may be described as follows:—

Frost and Wood. Manufacturers of Agricultural Implements. Have a steam plant of 500 h.p. capacity, and burn 2,200 tons of coal a year at $4.34 per ton. The plant operates ten hours per day, and the company estimate that their steam power costs them at the rate of $40.00 per h.p. per year. In the event of cheap electrical power being available, they would be in the market for from 350 to 400 h.p.

Smith's Falls Malleable Company. This company has a steam and water power plant. They control the Smith's Falls Electric Light and Power Company, which has a five year agreement for street lighting with the town, with sixty-eight arc lamps at $58.00 per year each. They have no franchise or agreement for supplying energy for incandescent lighting, but have erected poles and wires throughout the town, and are selling energy at arbitrary prices, no fixed rate being employed. Twenty-four hour service is supplied when possible. The maximum load is approximately 175 h.p. and the average load throughout the summer months about 75 h.p. The company has been in operation for about eighteen years.

The Citizen's Electric Light Company. These people also supply power for incandescent lighting from their distributing system in oppositon to the Smith's Falls Electric Light and Power Company. The former company owns and operates a water power derived from the surplus water of the canal; a steam auxiliary being used during low water seasons. The latter has no franchise with the town.

The Water Works System is owned and operated by the Town of Smith's Falls, and consists of a 50 h.p. 500 volt motor direct connected to a No. 5 J. McDougall turbine, seldom used. They also have one "Deane" steam pump. The water capacity is approximately 100 h.p. Steam pressure, through the consumption of from one and one-half to three tons of coal per day, is maintained for fire protection. In addition to the electric and steam plant, they also have a water

power equipment consisting of a Leffell, 40 in. wheel, direct connected with a triplex "Deane" pump. All this apparatus is contained within the same building, and has been purchased at various times. The town contemplates expending several thousands of dollars to place the water-works system in proper condition. This, however, should not be done until the present and future demands of the town have been considered.

Perrin Plow and Stove Works. The Plow Department of this plant is reported as planning to leave Smith's Falls. The stove works have an option on 22 h.p. which they purchase from the Citizen's Electric Light Company, and employ in addition a 25 h.p. steam equipment of their own.

Canadian Cooperage Company. This company has just started operation and has installed two boilers with an aggregate capacity of 140 h.p. They have a 75 h.p. and a 35 h.p. engine, and burn mill refuse, cuttings, etc., as fuel. This material has a marketable value, and in the event of power being obtainable in the town at a reasonable rate, motors would be installed up to 75 h.p. capacity.

The Woods Milling Company. This company owns and operates water rights on the river, and uses about 250 h.p. At certain seasons of the year they are troubled with low water and could possibly use from 75 to 100 h.p. during these periods.

A meeting was held with the Board of Trade and Town Council, at which the use of Hydro-Electric power was suggested. After a careful consideration of the industrial and lighting demands of the town, it was decided that from 750 to 1,000 h.p. could be utilized, and it was proposed that the Hydro-Electric Power Commission be requested to report on the situation and offer suggestions.

Perth.

The water works and incandescent lighting sytems are operated by the Canadian Electric and Water Works Company.

This Company has two water powers on the Tay River, one three and one-half, and the other four miles from Perth. They generate and distribute 133 cycle, two-phase power for lighting to customers within the town, and supply approximately 200 consumers at a rate of 10c. per kilowatt hour. During the summer months their average load is about 75 h.p., and in the winter months it frequently reaches 150 h.p. The water-works system of the town requires an average power load of about 40 h.p. The town provides for arc lighting, and owns and operates a small water power on the Tay River.

A meeting of the Board of Trade and Council was called by the Mayor for the purpose of discussing the power situation, upon which reports have been made by the engineers. As yet, however, no action has been taken to reach an understanding between the town and the company.

Other industries in the town are as follows:—

Perth Woolen Mills.—This Company has a steam plant of 150 h.p. capacity driving their woolen and felt mill. They consume 1,000 tons of coal per year at a cost of $4.57 per ton, with the plant operating ten hours per day for five and one-half days of the week. Although a certain amount of steam would be required in the mill for heating and dyeing purposes, about 80 h.p. motor output could be installed.

Kippan.—A saw mill having a 70 h.p. boiler and a 60 h.p. engine and burning refuse and cuttings for fuel. The refuse and cuttings possess marketable value, and, in the event of cheap power being supplied, motors could be installed with a capacity of from 25 to 35 h.p.

Wind Shoe Company.—This Company has just started to operate, and have installed a gas producer plant of 50 h.p. capacity, which they consider sufficient to meet their requirements for a year at least.

Henry K. Wampole Company—manufacturing chemists—have an installed boiler capacity of 150 h.p. and a 100 h.p. engine. A 30 kw. 125 volt D.C. generator is connected to this engine and employed for factory lighting in addition to the other power required. The Company say that actual tests have shown their average load to be about 35 h.p. except in the winter months when steam is also used for heating purposes and power is required to drive the generator for the factory lamps. They have about 250 incandescent lights installed in the factory.

James and Reid.—This Company operates a factory and machine shop by a 15 h.p. gasoline engine and a 25 h.p. steam equipment. Were cheap power available, motors with an output of 25 h.p. could be installed.

Dittrick Bros.—This company operates a machine shop, and in the event of electric power being supplied the town can install a 10 h.p. motor.

Dodds Carpet Company of Guelph.—This Company has made excavations for a small plant at Perth. The amount of power that will be required has not been determined. The town decided at a meeting that they could use 150 h.p., and if satisfactory arrangements could be made between the town and the Electric Light and Water Works Co. whereby the town could purchase them, the power demand could be increased to 300 h.p.

The present aggregate demand of the Town of Perth may safely be considered as 250 h.p.

The estimated demand resulting from these surveys is as follows:—

Kingston	2,400 h.p.
Sydenham	100 "
Harrowsmith	50 "
Yarker	35 "
Napanee	250 "
Marlbank	1,000 "
Verona	100 "
Perth	250 "
Smith's Falls	750 "
Lanark	50 "
Carlton Place	100 "
Almonte	50 "
Wilbur	50 "
Folger	75 "
Calabogie	400 "

A number of estimates have been prepared, on different schemes and routes, for transmission lines to supply this district with energy.

Ingersoll.

Although a contract had been made previous to October 31st, 1909, between Ingersoll and the Commission, for power, no further action was taken until Nov. 17th, 1910. when a request was received from the Town of Ingersoll asking that an engineer be sent to attend a meeting held to discuss the local electrical situation.

On February 1st, 1910, a deputation from Ingersoll interviewed the Engineering Department relative to the cost of power, and the system of charging employed for municipalities was explained to them.

Messrs. Ross and Holgate of Montreal, were appointed as Consulting Engineers for the town, to supervise the installation of their step-down transformer

equipment. Later, they withdrew, after contracts covering the apparatus had been awarded, and the Engineering Department of the Commission was appointed in their stead to supervise the construction of the municipal sub-station building and the installation of the transformer and switching equipment.

At the January, 1911, municipal elections, a by-law was passed creating a Commission to manage the Electric Light and Power Department. The Chairman of this new Commission wrote our Engineering Department for instructions regarding the work at hand, and an engineer was sent to Ingersoll who familiarized them with various details of management. After the installation had been completed a careful inspection was made of the layout.

Power was first delivered to Ingersoll on April 1st, 1911, the maximum load for the first month of operation being 167.7 h.p., and for October, 1911, 201 h.p.

The schedule of rates which the town employs was submitted to the Commission for their approval. Our engineer visits the town at frequent intervals, and interviews prospective customers in the interests of the local Commission.

Kingston.

A letter asking if the Commission had any other proposition to offer in respect to power, other than those which had been previously made, was received from the Chairman of the Industries Committee of Kingston, in March, 1911.

A number of estimates were prepared on the cost of delivering power to Kingston from a point opposite Waddington, N. Y., and also from High Falls on the Madawaska River. These estimates, however, were not submitted, since it was decided to make a complete study of the power requirements in the district lying north of the St. Lawrence River, so that estimates could be prepared to cover this area. Later, a complete engineering survey was made of this district, and from the information obtained, estimates were prepared (see High Falls, also Eastern Municipalities).

Kingston Asylum.

See Department of Public Works.

Lakefield.

An application was received on January 10th, 1911, from the Village of Lakefield for an estimate on the cost of supplying 400 h.p. to the village. The application has been held pending investigations of conditions in Peterboro (see Hydraulic Report) and an engineer was sent to Lakefield to make an investigation of conditions and place a valuation on the present equipment. The maximum load in Lakefield is about 150 h.p.

Lindsay.

See Hydraulic Report.

Listowel.

An application was received on December 12th, 1910, from the Town of Listowel, for an estimate on the cost of transmitting 300 h.p. to the municipality.

The following estimated costs for transmitting power to Listowel from Stratford, at 26,400 volts, were submitted:

H.P.	Cost per H.P.
400	$42 14
600	35 14
800	31 65
1,000	29 35

While investigating the possible sources from which to secure a supply of power for Collingwood, Owen Sound, and other points between these places and Guelph and Stratford, our engineer visited Listowel and enquired into the existing conditions. At the present time the town requires approximately 250 h.p. (See Report on Durham District.)

London.

London had contracted for power with the Commission previous to October 31st, 1909. Specifications covering the electrical equipment were later submitted to the Engineering Department of the Commission for approval, previous to awarding the contracts. After the installation of the apparatus a careful inspection was made before power was delivered.

At the request of the Water Commissioners a number of prospective power consumers were interviewed, and the rates which were to be employed were explained to them by an engineer of the Commission.

Power was first received in London on December 2nd, 1910. Their maximum load during the first month of operation was 805 h.p., and for October, 1911, 1,609 h.p.

London Asylum.

See Department of Public Works.

Lucan.

The Secretary of the Board of Trade of the Town of Lucan requested that an estimate on the cost of transmitting 500 h.p. to that municipality be submitted, and after careful investigation this was forwarded on November 23rd, 1909, for 500 h.p. at 13,200 volts at $34.00 per h.p. per year from the London Station.

Markham Village.

A resolution was received from the Council of Markham Village in July, 1911, requesting the Commission to submit an estimate on the cost of supplying power to the village. An engineer of the Commission paid a visit there on October 5th, and obtained the data required for the preparation of the estimate required.

The village requested us on October 25th to secure quotations on material for a new street lighting system. Information was obtained and sent to Markham on October 31st and December 8th.

Meaford.

See Report on Durham District.

Middleton Township.

Numerous inquiries had been received from residents of Middleton Township and the vicinity of Courtland regarding Hydro-Electric power, and on January 24th, 1911, an engineer was sent to Tillsonburg to meet and explain to those living in the rural district adjacent to Tillsonburg the procedure to be followed to obtain an estimate on the cost of supplying them with power. Two days later an application was received from the Clerk of Middleton Township for an estimate on the cost of supplying power to this neighbourhood.

Action relative to the Power Commission Act of 1911 was pending at the time this application was made, and the matter was therefore held so that the parties interested might secure the benefit of this action. We were advised on June 6th that the Township had received a petition signed by twelve farmers in accordance with this new Act. During the last week in July an engineer visited Tillsonburg to investigate conditions for the purpose of drawing up an estimate.

The Clerk of the Township forwarded a map showing the location of the various petitioners together with an approximate list of power that each would require, and from this information, together with what had previously been secured, estimates were prepared shewing that electrical energy could be supplied at a cost of $70.00 per h.p. per year.

A meeting was held in Courtland on October 5th, and various details were explained. (See Report on Rural Distribution.)

Midland.

An application was received in September, 1910, from the Town of Midland, for an estimate on the cost of power supplied from the plant of the Simcoe Railway and Power Company. Upon our receipt of this application an engineer was sent to investigate the plant of the Simcoe Railway and Power Company at Big Chute Rapids on the Severn River, and later, an extensive report on the cost of developing power at this site and transmitting it to the Towns of Midland and Penetang was submitted. Several conferences were held between the Commission and the Town Council of Midland regarding a supply of Hydro-Electric power to the town, and an agreement was finally made by which the Commission agreed to purchase power from the Simcoe Railway & Power Company and deliver to Midland at the corporate limits of the town at 2,200 volts.

At the request of the town, estimates were prepared on the cost of replacing their arc with series Tungsten incandescent lamps, and of a distributing system necessary to provide for power and light. These were submitted to Midland on March 25th.

Summary of Estimate for Midland.

	Capital Cost.	Depreciation.
New Lines and adding Third Wire to Present Primaries	$3,812 00	$118 00
New Transformers	1,999 00	126 00
Recalibrating Meters	816 00	65 00
New Street Lighting	1,851 00	98 00
Motor-driven Pump	2,400 00	144 00
Total	$10,878 00	$551 00
Engineering and Contingencies, 10%	1,088 00	55 00
	$11,966 00	$606 00
Interest during Construction, 2%	239 00	14 00
	$12,205 00	$620 00

Annual Charges:—	
Annual Interest at 4.5%	$549 00
Depreciation	620 00
Sinking Fund at 3.36%	410 00
Operating and Administration	1,500 00
Total Annual Charges	$3,079 00

Later, upon the request of the town, specifications were prepared and tenders received for service transformers and station equipment.

Specifications were also prepared and tenders, received at the request of the Water Department, for a pump capable of discharging 600 Imperial gallons per minute against a 300 foot head, direct connected to a 2,200 volt induction motor.

The Commission recommended the acceptance of the tender submitted by the Canada Foundry Company for a pump of the Mather & Platt design equipped with a Canadian General Electric motor. This recommendation was accepted by the corporation and the pump purchased.

The Corporation requested that power be supplied them for celebration purposes on Coronation Day, and power was therefore first delivered on that date to the town.

Millbank.

A letter was received from Millbank in December, 1910, requesting information regarding Hydro-Electric power. Blank forms of resolution were sent them with the request that they be filled out in the usual way and returned to the Commission.

Millgrove.

A letter was received in October, 1910, from a resident of Millgrove asking for information regarding Hydro-Electric power. Information was furnished.

Milton.

One of our engineers visited Milton on December 1st, 1909. Estimates were prepared and submitted for alternative distributing systems on December 9th. A revised estimate was also submitted on the cost of supplying Milton in conjunction with Brampton. No further action has been taken by the town.

Estimate of Cost of Distributing Station Equipment at Milton.
(450 kw. capacity.)

Item.	Capital Cost.	Per Cent.	Annual Charges.
1 13,200 volt line entrance lighting arrester, choke coils, panel instruments, oil switch	$2,800	6	$168
3 150 kw. 13,200/2,200 volt transformers O.I.S.C. at $1,125	3,375	6	203
2 Feeder panels at $400	800	6	48
1 C.C. transformer for 200-50 Watt series tungstens	900	6	54
1 street lighting panel	200	6	12
	$8,075	.....	485
Engineering and contingencies, 10 per cent.	808	.....	49
	$8,883	.....	.....
Interest during construction, 1½ per cent.	133	6	8
Total capital cost	$9,016	.....	

ESTIMATE OF COST OF DISTRIBUTING STATION EQUIPMENT AT MILTON.—*Continued.*
(450 kw. capacity.)

Items.	Capital Cost.	Per Cent.	Annual Charges.
Depreciation			542
Interest, 4 per cent. Sinking Fund, 1-8 per cent. on $9,016.00			523
Lost power, 5 per cent. at $35 (300 h.p.)			525
Total annual charges			$1,590
Amount of h.p. taken	300	400	500
Total annual charges	$1,590	1,765	1,940
Annual charges per h.p.	5.30	4.41	3.88
Total annual charges for power	$1,060	$1,177	$1,294
Annual charge per h.p for power	3.53	2.94	2.59
Total annual charge for house lighting	265	294	324
Annual charge per h.p. for house lighting	5.30	4.41	3.90
Total annual charge for street lighting	265	294	324
Annual charge per lamp	1.77	1.96	2.16

ESTIMATE ON COST OF POWER DISTRIBUTION SYSTEM FOR MILTON.

(100 h.p., 2 200 ft. and 7,900 ft., 2,200 volt, single circuit, 120 foot spacing.)

Item.	Capital Cost.	Per Cent.	Annual Charges.
85 poles, with cross arms, at $11.00	$935	8	$75
281 insulators, with pins, at 25c.	70	6	4
9,767 lb. No. 1 W.P. copper at 20c. erected	1,953	2	39
Extra line hardware	150	6	9
2 Watt meters at $65.00	130	6	8
	3,238		
Engineering and contingencies, 10 per cent.	324		14
	3,562		
Interest during construction, 1½ per cent.	53	6	3
Total capital cost	3,615		
Depreciation			152
Interest, 4 per cent.; sinking fund, 1.8 per cent. on $3,615.00			210
Labor, 1 man at $60 (¼ time)			180
Total annual charges			542
Total h.p. taken for power (2/3 of total power taken)	200	267	334
Annual charges per h.p.	2.71	$2.03	$1.62
Station annual charges per h.p.	3.53	2.94	2.59
Total for power	$6.24	$4.97	$4.21

No transformers are included in the above, but new poles and lines material entirely.

ESTIMATE ON COST OF LIGHTING DISTRIBUTION SYSTEM FOR MILTON.

4,200 feet of primary line, using existing pole lines as secondaries, but adding primary wire and one crossarm, etc., per pole, assuming 120 foot spacing.

Item.	Capital Cost.	Per Cent.	Annual Charges.
35 Cross arms, with insulators erected complete, at $1.50	$53	8	$4
1,411 lb. No. 6 copper T.B.W.P. erected at 20c	282	2	6
65 Watt meters erected at $15.00	975	6	59
7 10 kw. 2,200 110 volt transformers erected at $200	1,400	6	84
	2,710	.....	153
Engineering and contingencies, 10 per cent	271	.....	15
	2,981	.....	.....
Interest during construction, 1½ per cent.	45	6	3
Total capital cost	$3,026	.....	.....
Depreciation	.....	.....	171
Interest at 4 per cent.; sinking fund, 1.8 per cent. on $3,026.00	.....	.....	176
Labor, 1 man at $60 (½ time)	.....	.....	360
Total annual charges	.....	.....	707
H.P. taken for house lighting (1/3 of total power, less power for street lighting)	90	123	156
Annual charges per h.p.	7.86	5.75	4.53
Station annual charges per h.p.	5.30	4.41	3.90
	$13.16	$10.16	$8.43

ESTIMATES.—STREET LIGHTING FOR MILTON.

(150 4 ampere, 50 watt Tungsten lamps, and 6 miles single wire.)

Item.	Capital Cost.	Per Cent.	Annual Charges.
150 Brackets, sockets and shades, erected complete at $10.00	$1,500	6	$90
3,486 lb. No. 6 T.B.W.P. copper wire erected at 20c	697	2	14
Extra cross arms and insulator equipment	100	6	6
	2,297	.....	110
Engineering and contingencies, 10 per cent	230	.....	11
	2,527	.....	.....
Interest during construction, 1½ per cent.	33	6	2
Total capital cost	2,560	.....	.....
Depreciation	.....	.....	123
Interest, 4 per cent.; sinking fund, 1.8 per cent. on $2,560.00	.....	.....	149
300 lamps at $1.00	.....	.....	300
Labor, 1 man at $60.00 (¼ time)	.....	.....	180
Total annual charges	.....	.....	752
Annual cost per lamp (10 h.p. at $35.00)—			
Distribution	5.01	5.01	5.01
Station	1.77	1.96	2.16
Power	2.33	2.33	2.33
	$9.11	$9.30	$9.50

NOTE. Interest figures at 4%, Sinking Fund charge is figured at 1.8%, which at 4% interest retires principal in 30 years.

Labor is figured for one man at $60.00 per month. As no rotating apparatus is included, this man could do all the work and pay his wages by doing wiring in the houses, etc.

MILTON ALTERNATIVE ESTIMATES.

Item.	Capital Cost.	Per Cent.	Annual Charges.
1 13,200 volt line entrance lightning arrester, choke coils, panels, instruments and oil switch	$2,800	6	$168
3 100 kw. transformers, 13,200/2,200 volts O.I.S.C., at $900.00	2,700	6	162
2 switchboard panels at $400.00	800	6	48
1 75 kw. motor generator set, 2,200 volt synchronous motor, 220/110 volt, 3 wire generator 750 r.p.m.	3,800	6	228
	10,100	.....	606
Engineering and contingencies, 10 per cent.	1,010	.....	61
	11,110	.....	.....
Interest during construction, 1½ per cent.	167	6	10
Total capital cost	$11,277	.....	.....
Depreciation	.....	.....	677
Interest, 4 per cent.; sinking fund, 1.8 per cent. on $11,277.00	.....	.....	654
Lost power 10 per cent. at $35.00 (300 h.p.)	.....	.....	1,050
Labor, 1 man at $60	.....	.....	720
	.....	.....	$3,101

H.P. taken	300	400	500
Annual charges per h.p.	$10.34	$7.75	$6.20

NOTE. Present distribution system is to be used. No annual charges included outside of station. Two men required. More copper required on lines to provide distribution.

Interest figured at 4%, Sinking Fund charge at 1.8%, which at 4% interest will retire principal in 30 years.

Mimico Village.

A letter was received from the Village of Mimico in April, 1911, asking for particulars relative to a street lighting system. Resolution blanks were sent to the Clerk on May 1st with the request that they be filled out and returned to the Commission. A resolution was received on May 10th for an estimate on the cost of supplying 300 and 400 h.p.

Our engineer was sent to investigate conditions and upon the receipt of his report it was decided that a 13,200 volt line could be built from the Port Credit high tension station near Cooksville, and serve Mimico, Mimico Asylum, and factories located in the vicinity of New Toronto. The probable load for this district was assumed and an estimate prepared on the cost of supplying it with 2,200 volt power.

An estimate was also prepared on the cost of installing a street and house lighting system in the Village of Mimico, the details of which are given below:—

Estimated Cost of Distributing System in Mimico Village.

	Capital Cost.	Per Cent.	Main. and Dep.
66 40 ft. poles erected at $8.00	$528	8	$42
35 30 " " " " 5.00	175	8	14
200 25 " " " " 4.00	800	8	64
125 54 in. cross arms complete, erected with hardware	125	6	8
250 36 in. " " " " " "	188	6	11
1,000 insulators and pins erected at 25c	250	6	15
1,250 lb. cable erected at 24c	300	2	6
9,000 lb. T.B.W.P. copper wire erected at 20c	1,800	2	36
Guying and bracing	100	6	6
Tree trimming, etc	300	1½	5
Lightning arresters	200	6	12
4 5 kw. transformers erected at $90	360	6	22
2 10 " " for pumping plant at $125	250	6	15
40 service lines to consumers at $10.00	400	4	16
40 meters for houses installed at $12.00	480	6	29
50 street lights and brackets installed at $8.00	400	6	24
	6,656	.....	325
Engineering and construction, 10 per cent	666	.....	33
	7,322	.....	353
Interest during construction, 2 per cent	146	5	7
	$7,468	.....	365
Operation	.....	.....	300
Renewal of lamps (3 per year at $1.35)	.....	.....	203
Interest and sinking fund, 6.8 per cent	.....	.....	508
Power, 20 h.p. at $31.00	.....	.....	620
	.....	.....	$1,996

This estimate was submitted to the Council on July 14th, and after considerable delay, two by-laws, reading as follows, were submitted on September 16th:—

Are you in favor of:—

(1) Obtaining from the Hydro-Electric Power Commission of Ontario a supply of electric power?

(2) A by-law to raise $7,500 by the issue and sale of municipal debentures to install distribution plant for Hydro-Electric power?

The first by-law was carried 97 for and 40 against.

The second by-law was carried 90 for and 45 against.

The Commission submitted a contract for 100 h.p. at $30.50 per h.p. per annum on October 5th.

It was later decided, at a meeting of the Village Council held on October 14th, 1911, to request the Commission to submit a contract for 50 h.p. A resolution was also passed at this meeting requesting the Commission to act as consulting engineer and purchasing agent, for the village, of all material necessary for the installation of a distributing system in this municipality.

The Commission submitted a contract for 50 h.p. on October 16th for $30.74 per h.p. per annum. This was signed on October 19th by the Council.

Mimico Asylum.

See Department of Public Works.

Mitchell.

Our engineer visited Mitchell on February 1st, 1910, and with the Mayor, interviewed possible power consumers. An estimate was prepared on the cost of serving Mitchell with 13,200 volt power, and submitted to them on March 26th. Several calls were made by our engineer to the town and on April 22nd, 1910, the chief engineer attended meetings in Mitchell and Seaforth to discuss with them the possibilities of supplying Hydro-Electric power to the district.

A second estimate was prepared on the cost of a distributing system, and submitted on May 25th, 1910. Details of this estimate are given below:—

Estimated Cost of Distributing Station Equipment at Mitchell.

	Capital Cost.	Per Cent.	Annual Charges.
1 3 phase, 13,200 volt line entrance	$75	.....	.....
1 3 phase electrolytic lightning arrester, complete with horn gap disconnecting switches	375	.....	.....
3 choke coils	160	.....	.....
3 13,200 volt disconnecting switches	75	.....	.....
1 incoming line panel, complete with oil switch and instruments	1,000	.....	.....
3 single phase station transformers, 13,200 550 volt 75 kw. capacity	2,000	.....	.....
Busbars and wiring	50	.....	.....
1 power feeder panel, complete	350	.....	.....
1 syn. motor panel, complete	450	.....	.....
1 pump motor panel, complete	250	.....	.....
1 syn. motor, 100 kw. cap., to drive present generator	2,100	.....	.....
1 motor and pump, direct connected, for 250 gal. per min. cap. at 60 lb. pressure	575	.....	.....
	7,460	6	$448
Engineering and contingencies, 10 per cent.	746	.....	45
	8,206	.....	493
Interest during construction, 2 per cent.	164	6	10
	$8,370	.....	$503

Estimated Cost of Distributing System at Mitchell.

	Capital Cost.	Per Cent.	Annual Charges.
Present pole line used.			
Extra cross-arms for 9 poles, complete with hardware, at $1.00	$9	6	$1
266 lb. (2,048 ft.) No. 4 B. & S. copper erected at 20c.	53	2	1
252 lb. (630 ft.) No. 2 0 B. & S. copper erected at 20c.	51	2	1
Extra line hardware	25	6	2
	138	.....	5
Engineering and contingencies, 10 per cent.	14	.....	1
	152	.....	6
Interest during construction, 2 per cent.	3	.....	.....
	155	.....	6
Cost and charges of station equipment	8,370	.....	503
Total capital cost	$8,525	.....	509
Interest, 5 per cent.; sinking fund, 1.8 per cent.=6.8 per cent.	.....	.....	580
Total annual charges	.....	.....	$1,089

A by-law was submitted to the people on June 17th to determine whether or not they were in favor of Hydro-Electric power, and carried by a large majority. The rate-payers approved a by-law to raise $9,000 for the construction of a distributing system on November 14th, 1910.

A contract was submitted to the town for 200 h.p. at 38.50 per h.p. per annum on December 5th, 1910, and immediately signed.

At the request of the town, specifications, application for tender, and form of tender were prepared covering the electrical equipment and a pump for their municipal station, and sent to them on January 12th, 1911.

Considerable attention has been given to the adjustment of the power and light rates in Mitchell, and one of our representatives has called at Mitchell at least once a week to give them the necessary assistance in the installation of their plant and canvass of their power customers.

An inspection of the lines and station equipment was made by our operating engineer on August 10th, and a preliminary test performed on the line between Stratford and Mitchell.

Power was delivered to Mitchell on August 10th. In September, 1911, a request was received from Dublin, asking at what date the Commission expected to be in a position to deliver power for lighting the village. An estimate was prepared on the cost of supplying power, this was submitted on October 12th.

Morrisburg.

See Report on Eastern Municipalities.

Morristown.

A request was received from Morristown in November, 1910, for advice as to the procedure to be followed to secure a supply of Hydro-Electric power. The town was supplied with the necessary information.

Mount Brydges.

An estimate was submitted on the cost of supplying power to this village, in April, 1911.

Mount Forest.

See report on Durham district.

Mount Salem.

A request was received from Mount Salem on January 2nd, 1911, for information relative to a supply of Hydro-Electric power for the village. The Town Clerk was notified to have a representative attend a meeting to be held in Tillsonburg on January 24th, to consider the feasibility of supplying energy to the surrounding municipalities.

Napanee.

This municipality requested advice in April, 1910, regarding a contract which they proposed to make with a power transmission company. Subsequent to this, they had considered contracting with the Commission, and had received several estimates on the cost of 13,200 volt power. The town submitted their proposed contract with the power company, to the Commission, and were advised, by a representa-

tive who visited them in July, to postpone action until such a time as the matter could be more thoroughly investigated. However, on June 23rd, 1911, they passed a by-law authorizing an agreement, a franchise, and the sale of the municipal plant to the power company. Several changes, advantageous to the town were later made in this by-law. (See report on Eastern Municipalities.)

Nelson Township.

A request was received from the clerk of Nelson Township in April, 1911, asking for information regarding the procedure necessary to secure Hydro-Electric power, and the probable cost. All available information, together with a copy of the Act of 1911, was supplied the Council.

Newbury.

An estimate was prepared in April, 1911, at the request of the Reeve of the village, on the cost of serving Newbury with 13,200 volt power from the London station.

New Hamburg.

A request was received from New Hamburg in November, 1910, asking that we recommend an engineer capable of making a valuation of their electrical plant, and suggesting changes in detail necessary to adapt this plant for Hydro-Electric power. Recommendations having been made the municipality purchased the private electric light plant and proceeded with the installation of the necessary apparatus and street equipment to render it suitable for Hydro-Electric power. The Commission advised them in the purchase of this apparatus and, on January 26th, 1911, tested their station equipment. They now have very satisfactory service, a load of 107 h.p. and steadily increasing power and lighting demands.

Newmarket.

The Board of Trade in Newmarket requested information relative to a supply of power from the Commission, on May 10th, 1911. Resolution blanks were sent them with the request that the matter be taken up with the Council of the municipality and the customary resolution of Council secured for the Commission. These resolutions were filed in October, and our engineers were then sent to Aurora and Newmarket to investigate conditions.

New Toronto.

Several requests had been received from manufacturers in and around New Toronto for Hydro-Electric power, and our engineer was, therefore, sent to investigate conditions in this district in conjunction with those at Mimico and Mimico Asylum. Manufacturers were visited and an estimate was prepared on the cost of transmitting 500 and 600 h.p. at 13,200 volts along the Lake Shore Road to a station near New Toronto, and there stepping it down to 2,200 volts. Considerable correspondence passed between the manufacturers and the Commission and prices were finally submitted for 2,200 volt power. Subsequently, petitions, which included both the Lake View and Toronto Golf Clubs, were also received, for a supply of power, from both Etobicoke and Toronto Townships.

Niagara Falls.

A list of questions regarding Hydro-Electric power was received from the Municipality of Niagara Falls on May 14th, 1910. These questions were carefully answered and a deputation from Niagara Falls later visited Toronto to consult with the Commission regarding a supply of power. Estimates were prepared and submitted, on the cost of power delivered to Niagara Falls, on June 28th, 1910, and July, 1911.

Nissouri Township (East).

A petition was received on October 26th, 1911, from the farmers of Nissouri Township, for a supply of power throughout the district. The Town Clerk was notified that this petition would be laid before the Commission's Board at their next meeting and receive their earliest attention.

North Bay.

A resolution was received from the Council of North Bay on March 21st, 1911, requesting general information relative to the granting of franchise to electric light companies and the system of striking rates. A second resolution was received on April 10th, asking the Commission to act as consulting engineer for the municipality and advise them regarding power rates and a franchise. In June, a representative of the Commission visited North Bay to secure information and make investigations of the power situation. Subsequently a resolution of Council was received requesting the Commission to prepare a full and complete report of the power requirements of the municipality. Copies of all the present existing agreements between the municipality and the power companies were secured, together with the necessary information from the books of the municipality and a full and complete report was submitted. The North Bay Light, Heat and Power Company held an exclusive lighting franchise which expired September 17th, 1911. The Nipissing Power Company controlled by the Electric Power Company has a power franchise and is supplying power to the large users, and also to the North Bay Light, Heat and Power Company. The town later negotiated with the North Bay Light, Heat and Power Company for the purpose of purchasing their distributing lines, and on September 12th requested the Commission to furnish estimates on the cost of power.

North Toronto.

An estimate was prepared at the request of the Town of North Toronto on the cost of delivering 100, 150 and 200 h.p., at 13,200 volts, from the Port Credit station, and submitted on May 23rd, 1911. The question of obtaining this power from The Toronto Hydro-Electric System was taken up, and arrangements were made that gave North Toronto a supply from this latter source.

Norwich.

A representative of the Commission visited Norwich on December 31st, 1909. The village passed a by-law to raise $5,756.00 for a distributing system on January 3rd, 1910. A contract for 150 h.p. was submitted, Norwich, in March, for signature, and investigations were made to determine whether or not it would be advisable for them to purchase the privately-owned lighting plant already in operation. This

they eventually purchased at a price suggested by the Commission at the requests of the owner and the Council of the town. The Council passed a resolution on July 3rd, 1911, requesting the Commission to act as consulting engineer for the corporation and superintend the purchase, erection and installation of the buildings, plant and equipment necessary for the distribution of Hydro-Electric power. An estimate was prepared on the cost of the necessary buildings and equipment, and presented to the Council on August 7th. Details are given below. Plans and specifications were also prepared and tenders received for the transforming station equipment. Contracts were awarded on September 15th. Plans and specifications were later issued for the construction of the sub-station in the village, and a second by-law was passed on September 15th to raise money for a distributing system, since the by-law of 1910 had not been validated. The Commission was requested to order the necessary material for the distributing system and placed in full charge of construction. Subsequently Norwich decided to consider a small water-works plant, and one of the Commission's engineers visited the town to advise the location of their water-works pumping station as well as their sub-station. These stations will both be in operation very shortly.

NORWICH ESTIMATE.

Building	$1,000 00	
Equipment in Station	3,725 00	
Cedar Poles	449 00	
Street Lighting Equipment	638 00	
Telephone	22 00	
Two Sets Arresters	80 00	
Service Transformers	730 00	
Weatherproof Wire	362 20	
Detail Time and Material	643 00	
		$7,649 20
Engineering and Contingencies, 10%	764 92	
Interest during Construction	249 00	1,013 92
Webster's Plant	.....	3,875 00
		$12,538 12

This does not include the possible cost of the sites.

Oakville.

A letter was received from a resident of Oakville on April 11th, 1911, requesting particulars concerning the possibility of the farmers in the neighborhood of the village obtaining a supply of power from the Commission. A reply, enclosing a copy of the Power Commission Act, 1911, was forwarded on April 12th, as well as other instructions for making formal application.

Ontario Agricultural College.

See Department of Public Works.

Orillia.

An application was received from Orillia on March 10th, 1911, for a report on a proposed development at Rugged Rapids for supplying the town of Orillia with power.

A report on the condition in that town was prepared and submitted to the Town Clerk on May 18th.

The town applied to the Commission for further information concerning rates on September 8th, 1911. The Commission advised them on September 18th that

it would be impossible to furnish the desired information regarding rates without the fullest knowledge of the cost of power to Orillia when distributed to its various users. We, however, forwarded bills used by the Toronto Hydro-Electric System showing the recommended method of adjusting the rates, and further offered to send an engineer to thoroughly investigate the situation and recommend to the Council of the town a system of charging.

Ottawa.

A request was received from the City of Ottawa for a supply of 1,500 h.p. in addition to 1,000 h.p. already called for in their contract. Contracts were drawn up between the Ottawa and Hull Manufacturing Company and the Hydro-Electric Power Commission and between the Hydro-Electric Power Commission and the City of Ottawa whereby the City of Ottawa were able to obtain this additional 1,500 h.p. A schedule of rates for the City of Ottawa was also prepared, submitted to the Commission for approval, and adopted.

Otterville.

See Report on Rural Distribution.

Owen Sound.

A letter was received on March 7th, 1910, from the Town of Owen Sound, stating that they contemplated securing power from Eugenia and Hayward Falls with the idea of obtaining a larger and cheaper supply than that which they were at present obtaining, and asking what proceeding would be necessary to have the Hydro-Electric Power Commission report on the matter. The Commission replied on March 10th, that if the Council of Owen Sound would make formal application an engineer would be sent to investigate the situation, and within a fortnight after his return submit a report to the Council.

Formal application was made, and reports on the Eugenia and Hayward Falls water power schemes were forwarded to the Chairman of the Electric Light and Power Committee of Owen Sound on April 1st, 1910.

A resolution was passed by the Council on August 17th, requesting the Commission to investigate the conditions at the municipal electric light and power plant, and also advise an equitable rate for light and power in the town. (See Report on Durham.)

Palmerston.

See Report on Durham.

Paris.

Our engineers have visited the town of Paris several times, and have prepared estimates on the cost of supplying various amounts of power to the town and the local railway system. These estimates have been submitted to the municipality for their consideration.

Penetanguishene.

Application was received from the Town of Penetanguishene for an estimate on the cost of power delivered to them from the Simcoe Railway & Power Company.

Estimates were prepared and the following prices quoted for power supplied at 2,200 volts:—

Up to 500 h.p.	$31 00	per h.p.	per year.
500—1,000 h.p.	20 00	"	"
1,000—1,500 h.p.	19 00	"	"
Over 1,500 h.p.	18 00	"	"

The town accepted these rates and passed a by-law authorizing a contract. (See Contracts with Municipalities.)

The Commission acted as consulting engineer for the town; prepared plans and specifications; awarded the contracts for the transforming and switching equipment and sub-station building; purchased the material necessary for the distributing and street lighting system and supervised the complete installation. All construction work in connection with the municipal system is nearly completed at the present time.

Penetanguishene Asylum.

See Department of Public Works.

Petrolea.

A request was received from the Town Clerk of Petrolea on March 25th, 1911, for recommendations on a street lighting system for the village. Our engineer was sent to investigate conditions on April 12th, 1911.

The Commission prepared and submitted estimates on the first cost and annual charges for a street lighting system consisting of 100—80 c.p. 100 watt Tungsten lamps supplied with current obtained from the canning factory.

As a result of further correspondence, our engineer again visited Petrolea on July 25th to obtain a detailed plan of the town lighting and secure the approval of the Mayor, and the Chairman of the Light Commission.

Picton.

The Board of Trade of Picton requested in November, 1909, advice concerning a supply of Hydro-Electric power. The desired information was supplied, and the council passed a resolution, on November 26th, 1909, asking the Commission to submit an estimate of the cost for 500 h.p. transmitted from Trenton and the Trent River to Picton. An estimate was prepared and submitted on the cost of supplying power to Picton in conjunction with Kingston, Brockville and Prescott.

Plattsville.

An inquiry was received from the Police Village of Plattsville in October, 1911, regarding a supply of Hydro-Electric power. Resolution blanks were forwarded to the municipality together with information. Since several applications had been received from this district, an engineer visited this district on October 31st to investigate conditions in Drumbo, Plattsville, Wolverton, etc. Estimates are now being prepared on this district. (See Report on Drumbo.)

Port Arthur.

Application having been received from the City of Port Arthur for a supply of power, the Commission contracted with the Kaministiquia Power Company of Fort

William for electrical energy, and then entered into a contract with the City of Port Arthur for this power. (See Contracts and Municipalities.)

A resolution of the Utilities Committee was later received from the City Clerk requesting that an electrical expert be sent to advise the city as to possible changes or improvements in their Current River electrical development and their lighting and street railway system to secure the most economical and efficient operation.

An engineer visited Port Arthur in March. The results of his investigations were submitted in the following report:

REPORT OF INVESTIGATIONS AT PORT ARTHUR.

From information obtained from the Chairman of your Utilities Commission and as set forth in statement accompanying his letter of March 15th, we understand that you desire a report and advice on the following:—

1. *Power Department—*

(*a*) The economical use of the Hydro-Electric development on Current River in connection with the power supplied from the Commission's sub-station.

(*b*) The suggested improvements in the Current River plant and system of reservoirs.

(*c*) The amount of power that could be obtained from the Current River development continuously, and also the application of the power to the reduction of peak load on the Commission's sub-station which receives power from the Kaministiquia Power Company, with recommendations for the supply of power from this station.

(*d*) The proper rates to charge for power delivered from the Current River power station.

(*e*) Report on the present condition of Current River plant and feeders.

2. *The Commission's Sub-station.*

(*a*) The proposed extensions and equipment for the supply of street railway service, power and light distribution and street illumination.

(*b*) The proposed rates for commercial power and lighting, and for street illumination.

3. *The Distribution System for Power and Lighting.*

(*a*) A report on the present condition of the distribution system for light and power and suggested improvements.

(*b*) A report on street illumination and proposed street lighting system.

4. *Electrical Distribution of Power for the Electrical Railway System.*

(*a*) Recommendations on the feeder system to be installed from the Commission's sub-station.

Current River Development.

The power possibilities and the storage capacity of the reservoirs up to 1908 are fully reported on in the reports of J. T. Fanning, C.E., August, 1906, Smith, Kerry & Chace, June 1st, and August 13th, 1908, and the report of the Commission on November 30th, 1908.

Mr. Fanning's report dealt with the power conditions in the year 1906, since which time improvements have been made in the storage reservoirs along the lines suggested and the extensions to plant which were contemplated have been made.

The present development has a reservoir capacity of about 1,820,000,000 cu. ft. as follows:—

Onion Lake	1,312,000,000	cu. ft.
Knob Lake	40,000,000	"
Hazelwood Lake	392,000,000	"
Ray Lake	75,100,000	"
	1,819,100,000	"

We are informed that contracts have been awarded for a new dam at the service reservoirs which will increase the storage to 24,000,000 cubic feet capacity or sufficient for 48 hours' supply for plant. This extension is necessary and will add considerably to the value of the plant for use in reduction of peak load in the Commission's sub-station.

The costs of the dams, reservoirs and permanent works of the Current River were obtained from the books of the City Treasury Department. The following is a statement of these costs and the annual fixed charges to maintain and operate plant:

Cost of Dams, Reservoirs and Permanent Works of the Current River Plant.

Service Reservoir, not including washout, but including permanent works at Power House	$21,436 46
Onion Lake Dam	33,485 43
Extensions Onion Lake, 1908-1909	26,755 33
Hazelwood Dam	10,483 11
Knob Lake Dam	2,621 64
Ray Lake Dam	6,481 07
Paquette Dam	46,542 51
Extensions Paquette Dam and Survey, 1907-08	1,427 36
Washout of Current River Dam, etc.	32,007 69
Permanent Works on Plant up to 1907	52,763 70
Extension to Power Plant, 1907	15,526 68
Improvements, Permanent Works, 1909	15,486 35
Flume, 6 ft., 1907	12,723 95
Electrical Equipment, Power Plant, to 1909	38,503 72
Improvements in Tail Race, 1910	3,865 03
Electrical Equipment, 1910	1,987 87
Local Power Line	2,034 10
Engineering and Miscellaneous Accounts	1,442 52
Real Estate	6,230 86
Reports of Smith, Kerry and Chace	1,125 11
Total Cost, Current River Development, to December, 1910	$333,030 49
Contemplated additions for Dams, 1911	20,000 00
	$353,030 49

The annual fixed charges on above plant will be approximately as follows:—

Annual Interest, Sinking Fund and Instalments on $336,000 of Debenture	$24,486 53
Annual Fixed Charges to maintain and operate Plant	6,500 00
Salaries and Operating Expenses	5,520 00
Share of Office Administration	500 00
Total Cost to operate Current River Plant	$37,006 53

The present capacity of the plant is capable of developing with the storage available in the reservoir, a peak load of 1,600 h.p. for four or five hours each day.

and for the remainder of the day a continuous load of 500 to 700 h.p., these estimates being based on the efficient storage and regulation of run off. With careful attention to the regulating of the flow from the reservoirs and using the plant for reduction of peak load on the Commission's station, this plant can be made to pay when the above capacity of plant is in excess of the amount of power required to be taken from the Commission.

The proper attention to restricted hour power on this station may give a diversity load factor which will bring a sufficient revenue to pay costs on a smaller maximum load than the maximum capacity of plant.

Capacity of Power Plant.

The following Hydro-Electric equipment is installed in the Current River Power Station:—

1—660kw., 2,200 volt, 60 cycle, 450 r.p.m., Allis-Chalmers-Bullock generator installed in 1909 and direct connected to:—
2—30-in. Crocker turbines built by Jenkes Machine Co.
2—250 kw. 2,200 volt, 60 cycle, 450 r.p.m. generators manufactured by Bullock Electric Co., direct connected to:—
1—25-in. Crocker turbine built by Jenkes Machine Co.
1—200 kw. 550 volt, 500 r.p.m., d.c. generator direct connected to a Crocker turbine built by Jenkes Machine Co.
1—6 kw. 125 volt, 750 r.p.m. exciter.

The rated capacity of the alternating current generating equipment is 1,500 h.p. and for the direct current equipment 270 h.p. The plant is capable of carrying a maximum load of 1,600 h.p. of alternating current power at 2,200 volt, 60 cycle and the railway generator 300 h.p. at rated voltage.

The switchboard equipment for controlling the above plant consists of four panels containing the following instruments and control apparatus:—

Panel No. 1.

3—Ammeters,
Combination field and exciter rheostat handles.
1—Field Switch,
1—Condit 200 amp. automatic oil switch,
1—Bristol Recording meter on swing bracket,
3—Voltmeters.

Panel No. 2.

3—Ammeters.
1—Ammeter for the Exciter.
Volt Meter Plugs,
1—Curve Drawing voltmeter,
1—Field Switch,
1—Hartman Switch.

Panel No. 3. For 250 kw. Generator.

3—Ammeters,
1—Voltmeter,
1—Ground Detector,
1—Field Switch,
1—Exciter Switch,
1—Oil Switch, Condit,
3—Sets of Fuses.

Panel No. 4. For D. C. Railway Generator.

1—Ammeter, 600 amp.
1—Voltmeter,
1—Circuit Breaker,
1—3-Pole Switch,
1—Field Switch.

The Hartman and Condit switches on Panels No. 2 and No. 3 should be replaced by 2,200 volt, 200 amp. automatic oil switches, and a synchronizer should be installed on the switching panel.

The switchboard will have to be rewired and arrangements made for synchronizing the three a.c. machines. The accompanying wiring diagrams and specifications for switchboard will give sufficient information to have this carried out.

For the four outgoing feeders, oil switches and panels should be provided, with automatic oil switches, synchronizing and voltmeter receptacle and potential transformers for use in checking voltage and for synchronizing Current River machines with Commission's station busbars. Each outgoing feeder should be provided with lightning arresters, but these are not called for in the specifications for the switchboard in the Current River station, which is hereto attached.

Answering Your Questions in Order.

1.—(*a*) We would recommend that the Current River development be used in conjunction with the Commission's sub-station to reduce the peak load on this station, and in addition to carry the load of the power consumers within one-half mile of the Current River station, and up to the capacity recommended for continuous power. The generators in the Current River station should be arranged to be run in parallel, proper synchronizing devices being purchased for this purpose.

(*b*) The improvements necessary on Current River station are as follows:—

The present switchboard will have to be rebuilt and some of the equipment discarded or used for other purposes. New apparatus should be purchased suitable for the rearrangements as suggested and for the purpose of synchronizing of machines. The apparatus required and the arrangement suggested would be that called for in the Specification for Switchboard for City of Port Arthur Current River Station. In addition, we would recommend placing lightning arresters on all outgoing feeders.

The railway generator should be placed on its original foundation and connected to the waterwheel provided for it.

The load on this plant must be so adjusted that for the winter months there will be sufficient water to operate the railway generator or other power load in vicinity, and also take care of a peak load of about 1,600 h.p. It will require careful attention and economical use of the storage reservoirs.

(*c*) With proper regulation of run-off, you could obtain from the Current River system 500 to 700 h.p. continuously and be able in addition to take care of a peak load on system of 1,600 h.p. for 4 or 5 hours each day. We would recommend that this plant be utilized in the above way.

(*d*) The power delivered from the Current River Station for reduction of peak load on Commission's Station should be charged for at the same rate as you are paying Commission for power; and for power delivered to consumers the rates charged for power from Commission's Station should be used. The rate for power or light to consumers should be uniform for classes whether taken from Commission or Current River Station.

(*e*) We are unable to report on the condition of the reservoir dams, as these were not examined.

The apparatus in the Current River Station is in first class condition, with the exception of the switchboard, which will have to be rebuilt, as recommended.

The feeders are in fair condition and only require proper maintenance, and should be remodelled when new switchboard is installed.

2.—(*a*) It is proposed that three railway feeder panels be installed for the supply of power to the street railway. These will be in addition to the motor generator panels and feeder panels already on order.

The extensions to this station which we have already recommended are sufficient for your present needs.

Our recommendations on railway feeder equipment with prices obtained are hereto attached.

Our recommendations on street illumination are given below.

(*b*) We would recommend the use of the following rates for residential and commercial lighting, and power:—

A large number of your lighting customers are at present supplied on the flat rate with a twelve hour service. This system of flat rate charging for power or light is responsible for a large waste of energy, which is readily shown by the connection of this part of the system at any time, the load on the circuit even during the day being from 500 to 600 h.p.. Your customers do not cut off their lights when they are not required, with the resultant wasted energy, which considerably adds to your peak load. We would strongly recommend the giving of a 24 hour service to all and the installation of meters to all customers having five lamps or over, connected.

The installation of meters will decrease your lighting peak considerably, and also permit of the use of the restricted hour service for power. The objection raised that your city would not be nearly so brilliant when meters are installed will be greatly overbalanced by the much better street lighting system that you will install in the near future. Your streets will be so well lighted that it will not be necessary to rely on the illumination that comes from your houses to make your city look brilliant, and further, the small amount of light from the houses costs the city a large sum of money when they are supplied on the flat rate. We would therefore recommend that the following rates be adopted:—

Residential Service.

A monthly service charge of four cents (4c.) per 100 square feet of floor area, plus an energy charge of three and one-half cents (3½c.) per kilowatt hour, subject to a discount of 10 per cent. for prompt payment.

The accompanying application for lighting service and lighting contract will

give particulars as to the method of charging and the conditions of contract. The Commission will very shortly revise the above contract in a form more convenient for reference. For the present the above form will be suitable for the making of contracts.

The commercial lighting rate for stores, factories, hotels, etc., is given on the above lighting contract. We do not recommend the renewal of burnt out lamps, but would advise the city offering to furnish high class lamps at cost.

Commercial Power Rates.

3 phase, 60 cycles, 110, 220, 550 or 2200 volts.

Flat Rate.—At flat rate charge of thirty-six dollars ($36.00) per year per horse-power of maximum demand for the first ten horse-power, all excess at twenty-seven dollars ($27.00) per year per horse-power of maximum demand. Ten per cent. (10%) discount is allowed for prompt payment.

Differential Rate.—A service charge of $1.35 per month per horse-power for the first ten horse-power of maximum demand, all excess at $1.00 per horse-power of maximum demand, plus an energy charge of 2½c. per kilowatt hour for the first fifty hours monthly use of the maximum demand, 1½c. for the next succeeding fifty hours use and ¾c. per kilowatt hour for all excess. Ten per cent. (10%) discount is allowed for prompt payment.

The customer may have the option of taking restricted hour power at the discount shown on the accompanying printed copy of Power Contract. This power contract also includes conditions of contract. The maximum demand may be estimated in case of large users, or for small motors it may be taken as the installed capacity of motors or apparatus.

Elevator power may be placed under the differential rate.

We are at present considering the form of contracts and general conditions, and as soon as the Commission approves of the same we will be pleased to forward you a copy. In the meantime, the conditions given on accompanying contracts will be satisfactory. The rates for street illumination are given below in report on street lighting.

3.—(*a*) We have thoroughly examined your distribution system of power and light and find that it is only in a fair condition, and that with the present location of the distributing system the main circuits of the system will have to be rearranged and the entire system practically rebuilt to place it in good working condition. In many cases the poles have been improperly set, and have exceeded their useful life, and should be replaced. Nearly all poles will require attention. The overhead line work is at present in poor shape and should be remodelled at the same time your new street lighting system is installed, with the exception of the new construction which has been recently built. We would advise the rebuilding of the overhead system, carrying the work on systematically. For this purpose as large a gang should be placed as can be economically handled without seriously interfering with the service.

The first step in the reconstruction of your plant would be to determine as closely as possible the load curve, taking into account the probable increase in load. The transformers should be placed as near the centre of load as the arrangement of circuits will permit. We have taken a number of voltage measurements during loading periods to determine the voltage distribution of circuits and the loading conditions. We found that transformers were over-loaded, phases unbalanced,

and the load on transformers not balanced, resulting in unequal voltage distribution which, in some cases, was as great as 20 per cent. Also in many cases your lines were overloaded.

To properly carry out the reconstruction of the system, it will be necessary to obtain a systematic record of the load on all your transformers, its distribution as to phase, the condition of load on each low tension winding and the voltage regulations of these circuits.

Upon obtaining and properly recording these data, they should be studied and the circuits designed to give balanced loads and voltages on phases and secondary circuits, with a voltage regulation of circuit of three per cent (3%) or less. The main feeder regulation will have to be adjusted for the centre of the voltage on these circuits, and to obtain good regulation of the voltage on these circuits we would recommend the installation of feeder regulators. The system of feeders that we are suggesting for the re-arrangement of circuits has been designed with the understanding that at some future date regulators will be installed. The use of regulators with a voltage range of 7½% below and above normal will give a better voltage regulation on your system and at a less cost than an increase in the copper sections of feeders to obtain the same range of voltage regulation.

To re-arrange the distribution system for Port Arthur to adapt it to being supplied from both the Current River Power Station and the Hydro Sub-station on Van Norman Street, the following assumptions have been made.

It is assumed that on all lines the power factor will not go below 85%; that in addition to the transformer capacities shown on the blue prints supplied us by the Town of Port Arthur there will be a load of approximately 1500 h. p. in the vicinity of the C. N. R. Elevator. It is also assumed that the Current River Station will have a maximum load of not more than 1600 h. p.

The changes suggested in the layout are as follows:—

2,300 Volt Feeders.

That a tie line be run from the sub-station on Van Norman Street to the Current River Station, consisting of two circuits of No. 0000 B. & S. copper cable to be erected on the following streets:—

Leaving the sub-station on Van Norman Street, the line will run north on Shepherd Street to Dawson, then east on Dawson to College, then north on College to River, then east on River to Court, then north on Court and across the Current River on the present unoccupied poles, and from there east to the Current River Sub-station. In following this course it will be necessary to erect poles on River Street from Peter to Algoma. This line will also take care of any load that should be along this course.

A tie line and feeder circuit for mixed lighting and power service between the sub-station and the Current River Station consisting of one circuit of No. 0000 B. & S. copper cable should be run as follows:—

Leaving the sub-station on Van Norman Street, it should run east on Van Norman to Algoma Street, then north on Algoma to Cameron then east on Cameron to Cumberland, then north on Cumberland Street to the Current River Station.

It is found that with the three feeder circuits of No. 0000 B. & S. cable between the sub-station and the Current River Station the Current River Station can be supplied with a total of 1,500 h.p., with a voltage drop of 15.1% and a power loss of 8.35%.

A feeder regulator should be put in the power and feeder circuit just outlined

above, having a capacity of 200 amperes and a voltage regulation of 7½%. In this way it will be possible to better the poor voltage regulation that this line would have in case it should be required to carry the full amount of power.

A power feeder circuit should be run from the sub-station on Van Norman Street south on Hill Street to St. Patrick Square, then east on St. Patrick Square and Pearl Street to Cumberland St. At the corner of Pearl and Cumberland Streets it would feed the power load east of and along Cumberland Street as far south as Bay Street and as far north as Van Norman Street; should the Canadian Northern Elevator take power, it should also take care of this. From the sub-station to the corner of Pearl and Cumberland Streets the line should consist of two circuits of No. 0000 B. & S. cable. North on Cumberland Street from Pearl Street one Circuit of No. 0 cable should be run as far as Van Norman and south on Cumberland from Pearl there should be run one circuit of No. 0000 B. & S. cable and one circuit of No. 0 cable as far as Bay Street. In case of the C. N. R. Elevator taking power, the No. 0000 B. & S. cable should be extended to it. With the elevator taking 750 h.p. and other power users along the line taking the balance of the feeder capacity, making a total of 1,300 h.p., this line will give a total voltage drop at the corner of Pearl and Cumberland Streets of 6 per cent. and at the C. N. R. Elevator of 10 per cent.

A lighting feeder should be run over the same course as the previous power feeder as far as the corner of Pearl and Cumberland Streets. This should consist of one circuit of No. 0000 B. & S. copper cable and have inserted in it at the Van Norman Street Sub-station a voltage regulator of 200 ampere capacity, capable of a total voltage variation of 7½ per cent. Assuming a 600 h.p. load on this line, it is found that the voltage variation at the end of the line will be about 5 per cent., hence the desirability of inserting the regulator.

A power feeder should be run from the Van Norman Street Sub-station south on Hill Street to the corner of Fort William Road and Second Street. This should consist of two circuits of No. 0000 B. & S. cable.

Assuming the National Elevator taking 800 h.p. and other power users along this line taking enough additional power to make up the full feeder capacity of 1,300 h.p., it is found that the voltage drop at the National Elevator will be about 10 per cent. Should the National Elevator take power this double circuit of No. 0000 B. & S. cable should be extended to it.

A lighting feeder circuit should be run over the same course as the foregoing power feeder as far as the corner of Algoma and Queen Streets. This should consist of one circuit of No. 0000 B. & S. copper cable. A feeder regulator should also be inserted in this circuit in the Van Norman Street Sub-station, having a capacity of 200 amperes and capable of a voltage variation of 7½ per cent. The present lighting feeder running west on Red River Road may be tapped on to either of the foregoing lighting feeder circuits.

Tie Line and Feeder—Sub-station to Current River Station.

	lb.
144,000 ft. No. 0000 B. & S. D.B.W.P. Cable	107,180
Power Feeder—Substation to Pearl and Cumberland and along Cumberland, 37,200 ft. No. 0000 B. & S. D.B.W.P. Cable	27,714
9,600 ft. No. 0 D.B.W.P. Cable	3,725
Power Feeder—Substation on Fort William Road and Second St., 66,800 ft. No. 0000 B. & S. D.B.W.P. Cable	49,766

Lighting Feeder—Substation to Pearl and Cumberland Streets, 15,000 ft. No. 0000 B. & S. D.B.W.P. Cable...	11,175	
Lighting Feeder—Substation to Bay and Algoma Streets, 18,800 ft. No. 0000 B. & S. D.B.W.P. Cable.....	14,006	
291,400 ft.	213,566 at 16c. =	$34,170 56
Freight and Cartage at $1.00 per C.		2,135 66
Erection at $5 per M. ft.		1,457 00
Poles, Arms, and Insulators erected		1,620 00
Three Regulators installed		9,000 00
Total		$48,383 22

(*b*) The present system of street lighting by multiple arcs and low power incandescent lamps is insufficient for the purpose, and could be considerably improved upon. We would recommend that the entire equipment now in service be discarded and a new system of multiple and series tungsten lamps be installed, with standard pole, bracket, with reflectors for side streets and an ornamental bracket with globe for the main streets. We are pleased to offer a few suggestions along these lines. Pole brackets, as shewn in the accompanying sketches, for your down-town streets would prove ornamental and could be placed on both sides of the street. Two brackets to a pole, the pole being used in addition for carrying the supporting span wires of the trolley, and provided underground construction was not used at present we would recommend placing low tension lighting and service wires as shown on short brackets. These poles can be ornamental or plain cast-iron, depending on the amount of money available, or provided a more ornamental pole is desired, we would suggest a type similar to the enclosed cut.

Concrete poles can be used to advantage on residential streets, and they give a good appearance with the ornamental brackets with 10 in. globes. The concrete pole for combined use of carrying trolley wires and as a lamp standard has not met with entire success, although it is possible to design a pole that would withstand these stresses satisfactorily.

We would recommend the placing of all wires underground on the main streets, Cumberland, Arthur and Court Streets, and any others that you might desire. To obtain a good lighting effect it will be necessary to place lamps on every pole in residential districts, excepting the thinly populated, outlying sections. The ornamental bracket and globe with lamp should be placed about 9 ft. from ground. The bracket with reflector should be placed from 12 to 14 ft. above roadway or sidewalk. We would recommend a reflector similar to the Philadelphia type, using 100 watt lamps.

The following is an estimate of the work of installing a multiple system of lighting, in the area bounded by Wilson, Dufferin, Banning, Arthur, Jean, Dawson, Victoria and Water Streets; the remainder of the town being served by series lighting, lamps being placed 130 ft. apart, supplied from 6.6 amp. 150 light, constant current transformers located in basement of Municipal Buildings or near by.

ESTIMATE:

254,000 ft. No. 6 B. & S. D.B.W.P. Wire—25,400 lb. at 15¼c.....	$3,873 50
Freight, at $1.00 per C.	254 00
Erection	762 00
Line Construction	354 00
550 Lamp Brackets and Lamps, Multiple System	2,200 00
8-5 k.w. 2,200-220-110 volt Transformers	600 00
850 Series Brackets and 6-16 k.w. Constant Current Transformers	13,000 00
Total	$20,243 50

No allowance has been made for engineering or interest during construction. We have included in this estimate two-light clusters every 100 ft. on one side of Water Street from Pearl Street to C. P. R. Station, two-light clusters every 100 ft. on both sides of Arthur, North, Water and Waverley. Arthur Street and Waverley around fork (one side) on Cumberland, Bay to Cameron (both sides), on Court Street, Pearl to Van Norman (both sides).

The bracket shown on accompanying sketches can be placed on wooden poles by flattening side. The poles should be neatly painted with grey paint, a dark shade, for 6 ft. from ground. The remainder light grey.

We would recommend that the work on street lighting be commenced at as early a date as possible, and that when installing this system your lines could be reconstructed at the same time.

The overhead telephone lines may be placed below the power circuits in reconstructing your overhead system, leaving sufficient space between for the placing of transformers.

March, 1911.

Port Credit.

A request was received from Port Credit in December, 1909, for an estimate on the cost of distributing a supply of power. An estimate was prepared and submitted. One of our engineers visited this municipality several times during 1910, but since it is a Police Village and had no authority to contract, nothing could be done at that time. Following the passage of the Rural Distribution Bill of 1911, by the Legislature, a copy of which was sent to the Inspecting Trustee of Port Credit, the committee of the village passed a resolution requesting an estimate on the cost of power delivered to the village. Several meetings were arranged between our engineer and the Village Board for the purpose of obtaining the necessary information, after which a second estimate on the cost of power was prepared and submitted.

Port Credit Brick Company.

A contract was made with the Port Credit Brick Company at Port Credit for a supply of power and a line built to operate at 13,200 volts from the Commission's Port Credit Station to the premises of the Brick Company. The Consulting Engineer of the Brick Company secured the approval of the Commission before the installation of any of their electrical equipment, in accordance with a clause to that effect in the contract. Power was delivered to them in June, 1911.

Port Stanley.

The Council of Port Stanley requested an estimate on the probable cost of Hydro-Electric power supplied to the Municipality, in November, 1909. An estimate was prepared on the cost of transmitting 200 h.p. from St. Thomas station to Port Stanley, on November 22nd. No further action was taken by the village until the early part of 1911, when another request for information was received, this time from the Solicitor of the village. In response to the latter inquiry, a resolution was prepared and sent together with a request that it be submitted to the Council for approval. An engineer was sent to Port Stanley on March 2nd to investigate conditions, and at that time an application was made for an estimate on the cost of constructing a single circuit pole

line from the southern limits of St. Thomas to Port Stanley. Several succeeding visits were made to Port Stanley by our representative to ascertain conditions, and to obtain data for a valuation of the privately-owned lighting plant. An estimate on the value was made and submitted, at the request of Port Stanley, to their solicitor in May, 1911. Estimates were also prepared on the cost of distributing Hydro-Electric power in Port Stanley, the Commission providing the step-down equipment.

The estimates for the material necessary to adapt the present plant to Hydro-Electric power were submitted to Port Stanley on June 21st, 1911. The Council requested the Commission on June 27th to act as Consulting Engineer for the village as well as agents in the purchase of material. Specifications were prepared for the building equipment and tenders were called for by the Commission on July 18th, 1911. The Corporation of Port Stanley submitted a by-law for the purpose of raising $6,875.00 for the purchase of the present plant, and $5,875.00 to adapt it to Hydro-Electric power on August 9th, 1911. The by-law was carried by a majority of 172. A resolution was passed on August 16th by the village Council authorizing the Commission to take charge of the installation of a distributing system in the village and the purchase of all material. The Commission immediately ordered the necessary material and sent a man to Port Stanley to superintend the erection of the system.

Several estimates were prepared on the cost of transmitting various amounts of power to Port Stanley, and a contract for 50 h.p. at $79.89 per h.p. per year was finally submitted to the village on September 29th. Specifications and plans for their station building were also prepared at the request of the municipality. The contract for power was signed on October 6th, 1911.

Preston.

During 1909 the Commission acted as Consulting Engineer to the town of Preston; issued specifications and called for tenders on the electrical equipment, as well as the necessary material for their distributing system. Tenders were received during November and December, 1909, and early in 1910 contracts were signed, in accordance with a resolution of the Preston Council dated December 21st. A by-law to provide the necessary funds for a distributing system was submitted and carried by a large majority on January 31st, 1910. In February the Municipal Council authorized the Preston Light and Water Commission to handle all questions and action pertaining to the delivery of Hydro-Electric power in the municipality. A resident engineer was appointed for the district, including Preston, Galt and Hespeler, who supervised the erection of material and aided the municipality in its power canvass. The purchasing of material and the general supervision of deliveries and shipments from the different contractors were handled by the Toronto office. A resolution was passed on June 1st, 1910, by the Light and Water Commission of Preston authorizing the Hydro-Electric Commission to call for tenders on two 250 gallon motor-driven turbine pumps. Later a request was received from the Town Council asking that they be allowed to supply power outside of the Corporate Limits to individual residents in the Township of Waterloo. They were advised to obtain the permission of the Township Council of Waterloo before proceeding to supply power outside the limits of their own township. The Township of Waterloo granted their request. Preston was notified on October 25th that the Commission was prepared to furnish twenty-four hour power, but it was not until November 29th, 1910, that the municipality obtained

a supply of power. Power was first delivered to the Preston station for test purposes on November 14th. Considerable attention had been given to power rates and forms of bills during 1911. Our representatives have spent considerable time supervising the installation of material and adjusting difficulties arising from time to time between the power-users and the Corporation of Preston. Since power was first supplied the load at Preston has been rapidly increasing until at the present time this municipality is taking a peak load of over 300 h.p.

Rockwood.

At the time our engineer was sent to investigate the power requirements of the towns of Acton and Georgetown, he was also instructed to visit Rockwood and collect data on the power requirements of that village and vicinity. It was estimated that about 50 h.p. would be required here, and estimates were accordingly prepared for this quantity in conjunction with those for Acton and Georgetown. (See Report on Acton.)

Rural Distribution.

Numerous inquiries were received from residents of police villages and various rural districts regarding Hydro-Electric power previous to the passage of "The Power Commission Act" of 1911, which now permits a police village or group of residents to make application to the Hydro-Electric Power Commission for a supply of power through the Council of their township.

Since the passing of this Bill many police villages and rural districts that had been endeavoring to interest the townships in the matter, now applied to the Commission for estimates on the cost of power. The following have applied for estimates in accordance with the Power Act:—

Baden, Beachville, Beverley Township, Caistor Centre, Courtland, Drumbo, Dublin, Guelph Township, Middleton Township, Mimico, Nelson Township, New Toronto, E. Nissouri Township, Port Credit, Plattsville, Rockwood, Schaw, Scarboro', St. Thomas vicinity, Smithville, S. Norwich Township, Springford, Otterville, Thorndale, Waterdown and York Township.

The conditions which have presented themselves since this line of work was started offer a number of engineering problems which require thorough study. Our engineers have investigated conditions in the villages and districts just mentioned, and also in those villages where inquiries were made as to the proper procedure to pursue in making application for power. Information and instruction as to what data their petitions should contain, have been given, and a study of the conditions has been made in each particular case in order to secure some idea of the probable power demand. This necessarily involved a great amount of work, since it was essential that the engineer, when making the investigation, visit nearly every prospective power-user and individually examine the existing conditions. In addition, plans had been made for a cheap, yet serviceable system of transmission and transformation for use in these rural districts, and with the information obtained, an investigation is now being made with the idea of ultimately developing a system for the distribution of power through rural districts that will be both substantial and economical in construction.

The local distribution in the police villages is not so intricate a question as the supply for the rural districts, and we have been able to submit estimates on the cost of delivery with a minimum amount of delay. Consequently a number of the police villages have been able to submit the requisite money by-laws and enter into contract with the Commission for a supply of power, and in many the distributing systems are under construction. (See Reports.)

Sandwich.

While investigating the possible methods of supplying power to Windsor, the requirements of the Town of Sandwich were also investigated and considerable data secured. (See Report on Windsor.)

Sarnia.

A copy of resolution dated November 29th, 1910, was received from the Town of Sarnia, requesting an estimate on the cost of transmitting and supplying 3,000, 5,000, 7,000 and 10,000 h.p. to that municipality. The following estimates were submitted on December 27th, 1910, for 13,200 volt power assuming a load of 1,000 h.p. at or near Strathroy:—

Municipality.	H.P.	Cost per h.p. per annum.
Sarnia	3,000	39.21
Strathroy Station	1,000	39.61
Sarnia	5,000	31.94
Strathroy Station	1,000	36.90
Sarnia	7,000	28.45
Strathroy Station	1,000	35.18
Sarnia	10,000	24.89
Strathroy Station	1,000	33,69

Additional estimates on the cost of supplying power to Sarnia were also made in connection with a supply of power to Windsor. (See Report on Windsor.)

Scarboro' Township.

A communication was received from the Clerk of the Township of Scarboro', on September 4th, 1911, respecting a supply of power for Birch Cliff and the neighborhood, in accordance with the Power Commission Act of 1911. A petition has been received, and investigations are at present being made. (See Report on Rural Distribution.)

Schaw.

Verbal requests having been received from various operators of stone quarries at Schaw, relative to a supply of Hydro-Electric power, an engineer was sent there on August 3rd, 1911, to investigate conditions.

It was found that there was a demand for approximately 250 h.p. Estimates were accordingly prepared and submitted for 2,200 volt power at an estimated cost of $34.48 per h.p. per year.

Seaforth.

A communication received from the Mayor of Seaforth, dated January 7th, 1910, requested particulars regarding a supply of Hydro-Electric power for the town. An engineer was sent to investigate conditions there as well as in other towns west of Stratford, including Dublin, Mitchell and Sebringville. It was found that there was a demand of about 400 h.p. in Seaforth.

Estimates were accordingly prepared and submitted on the cost of transmitting and supplying Seaforth at a cost of $41.25 per h.p. per year for 400 h.p.

Estimates were also made on the cost of the transforming station and switching and distributing equipment. Two by-laws were passed by the town in August, 1910, one authorizing the Town Council to enter into a contract with the Hydro-Electric Power Commission for the supply of power, and the other authorizing the Council to issue debentures for $25,000 to cover the cost of apparatus necessary to receive and distribute power. A contract was signed for 400 h.p. at $41.25 per h.p. per year.

The Engineering Department of the Commission was later appointed consulting engineer for the town.

Specifications were prepared covering the sub-station building and equipment, consisting of 3-150 kv-a. single phase 13,200/2,300 volt transformers, 13,200 volt switching and protective equipment, 2,300 volt switching and feeder equipment and constant current transformers with control apparatus for street lighting.

Tenders were called for and received covering all of this equipment, and forwarded to the Corporation with our recommendations for their approval, after which the following awards were made:—

Three 150-kv-a. single phase transformers to the Canadian Crocker-Wheeler Company, St. Catharines, the balance of the electrical equipment to the Canadian General Electric Company, Toronto. We were also able to arrange between the Canadian General Electric Company, Seaforth, and the Town of St. Mary's for the installation in Seaforth of certain apparatus that had been purchased by the Town of St. Mary's but which had afterwards been found unnecessary, due to changes in station arrangement.

The contract for the sub-station structure was locally awarded. The building was constructed strictly in accordance with plans and specifications prepared by the Engineering Department.

All apparatus previous to being shipped from the factory was inspected and tested by our engineers, who made complete reports of these inspections. The installation of all equipment was made under the direct supervision of the Engineering Department. Our representative spent two days a week in the town going over the various details of construction; giving the necessary suggestions and instructions for the proper installation of the sub-station equipment and the street lighting distribution system.

The construction here is now fast approaching completion, but after the system has been placed in operation our engineers will continue to visit the town at least one day a week for the purpose of advising the local superintendent and increasing the power load.

Shakespeare.

An engineer was sent to investigate the power requirement of Shakespeare, and found that there was a demand for about 35 h.p. (See Report on Tavistock.)

Shallow Lake.

See Report on Durham District.

Smithville.

An inquiry was received from the Clerk of the Township of South Grimsby, on January 12th, 1911, relative to the possibility of obtaining 100 h.p. for the village of Smithville.

Investigations were made with the idea of supplying the village, together with other municipalities in the district, from a transformer station located near St. Ann's. (See Report on St. Ann's.) A number of the municipalities in the district have been visited and investigations are at present being made to ascertain the possibility of supplying them with power under the Power Commission Act of 1911. (See Report on Rural Distribution.)

Sparta.

An inquiry was received from Sparta, dated February 13th, 1911, requesting information as to the possibility of supplying power to farmers in the neighborhood.

Springfield.

An inquiry was received on February 13th, 1911, from the Reeve of the Village of Springfield, who desired to ascertain the possibility of the village securing a supply of Hydro-Electric power.

Springford.

At the time our engineer was investigating conditions in the neighborhood of Otterville and South Norwich Township, he visited Springford, and secured information relating to the requirements of the vicinity, and also gave instructions as to the proper procedure to follow should the residents desire to secure power from the Commission. (See Report on Rural Distribution.)

St. Ann's.

Numerous requests were received from different Municipalities located between Hamilton and St. Catharines for estimates on the cost of power. To ascertain the probable demand in this district, our engineer made a complete power survey during June, 1911, the results of which are outlined in the following report:—

REPORT ON GRIMSBY DISTRICT WITH STATION AT ST. ANN'S.

Grimsby.

Water Works Plant, at beach on the west side of the creek, is using one 40 h.p. motor direct connected to a triplex pump and one 20 h.p. motor similarly connected. This plant is using 40 h.p., pumping 225,000 gallons daily at a pressure of from 130 to 140 lb. This plant should be enlarged and other pumps installed which will require about 60 h.p. 24 hour power to operate.

Grimsby Beach Co. (2¼ miles east of the village).—This Company is at the present time being supplied on a 75 h.p. contract. In all probability, with the increased lighting load they wish to take on, this demand will reach 100 h.p., being required only during the summer months.

Theal Bros. (Flour and Feed).—This Company operates a 20 h.p. motor driving a chopping mill. Load factor on this motor is about 25 per cent.

Specialty Mfg. Co.—This Company is at present using about 20 h.p. of steam power and anticipate requiring 40 h.p. in 1912 or 1913.

Robinson and Werner (Planing Mill).—Are using about 40 h.p. steam power, refuse being used for fuel. They claim that they could use electric power to advantage and sell their refuse readily.

Bell Farms, Limited.—This Company has a 95 h.p. Leonard engine and 550 lights installed, and are just completing a canning factory at the village limits of Grimsby. They estimate they could probably use 30 h.p. electric power.

Dominion Canneries, Limited.—This Company requires steam in cooking and in other operations, but could use some power for special work and lighting.

D. Marsh (Planing Mill).—Mr. Marsh has a new 35 h.p. engine operating from an old 25 h.p. boiler, the latter being too small for his plant. He claims that he will require more power next year to the extent of 20 h.p.

Street Lighting.—This is accomplished at the present time by 35 24 c.p. carbon filament lamps with no reflectors. They should have at least 50 80 watt Tungsten lights.

Rural.—Between Grimsby and Stoney Creek there are about 155 houses, between Grimsby and Beamsville about 65, some of which are already wired and using electricity for lighting purposes.

Beamsville.

Beamsville Pressed Brick and Terra Cotta Co.—This plant is located about 2¼ miles west of Beamsville and uses as much as 100 h.p. at different times, the average load being about 45 h.p. It is probable that 60 h.p. could be used here.

James Hewitt (Mill).—This mill would require 20 h.p. in addition to lighting.

Beamsville Preserving Co.—This Company requires steam for operation and and cooking, but could use electricity to operate from 50 to 75 lights.

R. H. Darey (Printer).—Requires about 5 h.p., which would operate at a load factor of about 15 per cent.

Mr. Wilson (Baker).—Is at present using a 5 h.p. gasoline engine.

Lighting.—Street lighting in Beamsville is accomplished by the use of forty 32 c.p. carbon lamps. Power is supplied for lighting service at nights only for house lighting purposes.

Stoney Creek.

It is estimated that the total demand for power and lighting here would be about 30 h.p.

Fruitland.

Fifty h.p. would meet the needs of this village for power and lighting purposes, the total load being rural, with the exception of the brickyard.

Winona.

Power would be required here for lighting purposes only, it being estimated that 65 h.p. would meet the needs of the village.

Silverdale.

There is one saw mill here and two seed cleaners. It is estimated that 10 h.p. would take care of the total power and lighting requirements.

Smithville.

The power consumers here are as follows:—

A. Lynburner (Cheese Manufacturer).—Employs an 8 h.p. gasoline engine.

Jocob Morley.—Employs a 50 h.p. producer -gas engine to operate his mill, but would like about 75 h.p. electric power.

Wm. Sheppard (Foundry).—Uses a gas engine, gas being supplied from his own well. The flow of this gas is very uncertain. He could use 8 h.p.

Zimmerman Mfg. Co. (Planing Mill).—Employs a gasoline engine, but would like 25 h.p. of electric power.

Murray and Company (Seed Mill).—This mill would require about 6 h.p.

T. H. and B.—The railway is at present using a 15 h.p. gasoline engine for pumping purposes. It is very unsatisfactory and the company would replace it with electric power.

Lighting.—About 21 h.p. would meet the house and street lighting requirements of the village. It is estimated that the total demand of the village will be about 150 h.p.

Dunnville.

Power users in Dunnville are as follows:—

Canadian and American Gasoline Engine Co.—Employ a gas engine and natural gas of about 50 h.p. capacity. They are doubtful of their gas supply, and would replace their plant by electric drive requiring about the same quantity of power.

Dominion Hammock Mfg. Co.—This Company also uses a gas engine, with natural gas, 25 h.p. capacity.

Dunville Carding Mills.—This Company uses about 75 h.p. water power from the canal. They secure their power at a very low rate.

Erie Knitting Co.—This Company uses a 15 h.p. gas engine delivering from 6 to 8 h.p.

W. A. Fry (Publisher).—Employs a 3 h.p. gasoline engine.

Stephen Haney and Son (Mill).—This mill also uses water power from the canal.

Jas. Phillips (Creamery).—Use a 5 h.p. gas engine.

Wm. Shirton Co.—This Company at present uses 125 h.p. gas engine and a 30 h.p. steam engine. They state that they require additional power in the mill and would consider contracting for electric power up to 20 h.p.

Standard Foundry and Machinery Co.—Have a 25 h.p. gas engine installed.

J. F. Vanderburg (Laundry).—Employ a 5 h.p. gas engine.

O. E. Wilson (Grist Mill).—This mill uses water power supplied from the canal.

W. T. Wiemer and Son.—Claim they could use 5 h.p. to advantage.

Monarch Knitting Co.—This Company is at present generating its own electric power, having two 50 k.w., 125 volt, d.c. generators driven by a gas engine, developing a maximum load of 150 h.p. They could use 20 h.p. additional power to advantage.

Waterworks.—They are at the present time operating two 80 h.p. boilers with gas for fuel, which drive two pumps, one having a capacity of 750,000 gallons per day and the other 1,000,000 gallons per day operating under a normal pressure of 40 lb. and 110 lb. in case of fires. The daily use of water is between 350,000 and 375,000 gallons.

Dunnville Electric Light Co.—This Company at the present time supplies the town with power for street lighting and house lighting purposes, their generating equipment being driven by water obtained from the canal, the maximum load being between 60 and 80 h.p. It is estimated that the requirements of Dunnville could be met with a total supply of 350 h.p.

St. Mary's.

Plans and specifications covering the transformer equipment and distributing system for the Town of St. Mary's were prepared by their local superintendent, and contracts were awarded after these had been approved by our Engineering Department.

During the installation of the apparatus, unlooked for difficulties occurred, and the Engineering Department was requested by the Secretary of the Hydro-Electric Committee of St. Mary's to act as consulting engineer on October 1st, 1910.

It was proposed by the town to install their transformer equipment in a building located within the town limits at some distance from the Power Commission's Station, but it was later found to be more advantageous to install this apparatus in the Commission's Station, a location which would be just as economical in regard to the efficiency of distribution and would also result in a considerable saving in electrical equipment as well as reduce the cost of operation, since one set of operators could then look after the equipment of the town and Commission. The former equipment was, therefore, installed in our transformer station, under our supervision.

Power was first received at St. Mary's on April 21st, 1910. Their maximum load during the first month of operation was 134.6 h.p., and 241 h.p. for February, 1911.

St. Thomas.

Acting in the capacity of consulting engineer for the City of St. Thomas, the Commission made a careful study of the street lighting requirements. Plans and specifications were drawn up and contracts awarded covering the necessary transformer and switching equipment, a rotary converter for the Street Railway, and the street lighting apparatus and equipment.

The work of installing this apparatus was supervised and a complete inspection of the apparatus made both at the factory prior to shipment and previous to its being placed in operation by the engineers of the Commission.

Power was first received in St. Thomas on February 23rd, 1911. The maximum load taken during the first month of operation was 134 h.p., and for the month of October, 1911, 469 h.p.

The Commission, in addition to the consulting work undertaken, purchased all necessary equipment for the distribution system, consisting of wires and other line equipment, transformers, meters, etc.

The Water Commissioners of St. Thomas later desired to purchase, through the Commission, a motor-driven low head pump, with a capacity of 2,100 imperial gallons per minute, for the new water system which they were installing. The necessary specifications were prepared, tenders received for the equipment, and after careful consideration the Commission recommended the purchase of a pump from the Canadian Böving Company. This recommendation was accepted by the Corporation, and a contract was made forthwith.

Stratford.

As consulting engineer for the Town of Stratford, the Commission prepared estimates on the cost of installing transforming and switchboard equipment and a distributing and street lighting system. A valuation was also made on the electrical plant of the Gas Company at that time supplying the town with power.

A by-law was submitted at the January elections in 1910, authorizing the issue of $105,800 in debentures to provide for the purchase of the electrical plant of the Stratford Gas Company, and the remodelling of the system then installed, to adapt it to the Hydro-Electric power. This by-law was defeated.

A second by-law authorizing the issue of $85,000 in debentures was submitted and carried by a large majority of the ratepayers on April 14th, 1910. This by-law provided the necessary money to purchase the poles and lines of the Gas Company, and the transformer, switching and all other equipment necessary for the distribution of Hydro-Electric power.

Specifications for all electrical apparatus to be installed by the town were submitted to the Engineering Department of the Commission for their approval, and following their installation a thorough inspection was made of the equipment prior to operation.

The question of street lighting was later carefully investigated, and recommendations were made relative to the most desirable system. Our suggestions were followed by the town in making the installation.

Power was first received from the Commission on December 25th, 1910, the maximum load taken during the first month of operation being 54 h.p., and for the month of October, 1911, 569 h.p.

At the request of the Water and Light Commissioners of the town, many prospective power-users in the town have been interviewed and the system of rates employed by the municipality explained to them. Our engineer now regularly visits Stratford one day a week.

Strathroy.

A request was received from the Mayor of the Town of Strathroy on December 13th, 1910, for estimates on the cost of supplying 100, 200, 300 and 400 h.p. to the town. Estimates were submitted, January 4th, 1911, on the cost of delivering 1,000 h.p. to Strathroy in connection with various quantities to Sarnia. It was assumed that other municipalities in that district would also desire to enter the Niagara Power Union, and consequently a total load of 1,000 h.p. could be obtained for a station located in Strathroy. (See Report on Sarnia, also on Windsor.)

Tavistock.

At the request of the Reeve of the Village of Tavistock, an engineer visited them on November 30th, 1910.

Later, at the desire of the village, estimates were prepared on the cost of supplying 200, 300, 400 and 500 h.p. to Tavistock. Together with these, other estimates were also prepared on the cost of supplying Shakespeare, the following figures being submitted for their consideration:—

1. Tavistock alone, the power being supplied at 13,200 volts.

200 h.p.	$40.35	per h.p.	per year.
300 "	35.42	"	"
400 "	32.73	"	"
500 "	31.02	"	"

2. Tavistock and Shakespeare together, Tavistock being supplied with 13,200 volt power, and Shakespeare 2,200 volt power from a transformer station built at Tavistock:—

Tavistock	200 h.p.	$38.50	per h.p. per year.
Shakespeare	35 "	45.70	" "
Tavistock	300 "	34.55	" "
Shakespeare	35 "	40.79	" "
Tavistock	400 "	32.25	" "
Shakespeare	35 "	37.83	" "
Tavistock	500 "	30.70	" "
Shakespeare	35 "	35.77	" "

3. Tavistock and Shakespeare both supplied with 2,200 volt power from a transformer station located at Tavistock:

Tavistock	200 h.p.	$44.22	per h.p. per year.
Shakespeare	35 "	45.70	" "
Tavistock	300 "	38.86	" "
Shakespeare	35 "	40.79	" "
Tavistock	400 "	35.63	" "
Shakespeare	35 "	37.83	" "
Tavistock	500 "	35.51	" "
Shakespeare	35 "	35.77	" "

4. Tavistock supplied with 13,200 volt and Shakespeare with 2,200 or 550 volt power from a pole type transformer placed on the line running to Tavistock:

Tavistock	200 h.p.	$39.02	per h.p. per year.
Shakespeare	35 "	38.74	" "
Tavistock	300 "	34.77	" "
Shakespeare	35 "	35.74	" "
Tavistock	400 "	32.38	" "
Shakespeare	35 "	34.11	" "
Tavistock	500 "	30.78	" "
Shakespeare	35 "	32.95	" "

Thamesford.

A request was received from the police Village of Thamesford on September 27th, 1910, for information in connection with Hydro-Electric power. Our representative visited the village on December 7th, 1910.

On June 27th, a letter enclosing a map of the village was received with the request that the Commission estimate the cost of supplying and distributing power to the village.

The Trustees of Thamesford were advised on July 10th, 1911, that 80 h.p. could be supplied at 2,200 volts for $43.87 per h.p. per year. It was planned to transmit this power at 13,200 volts, and it was estimated that it could be distributed through the village at 220 and 110 volts for approximately $5.01 per h.p. This estimate was later altered to $48.73 for 100 h.p. to include additional equipment which the Commission considered necessary.

On October 9th the Power and Money By-laws were submitted to the voters and carried.

The contract for power was sent (in duplicate) to Thamesford for signature on October 28th.

Thornbury.

See Report on Durham District.

Thorndale.

A resolution was passed on August 8th, 1911, requesting the Commission to submit to the village an estimate on 200 h.p.

On October 11th, a copy of the Rural Act and also necessary By-laws were sent to the Police Village of Thorndale. An estimate on 200 h.p. was later prepared and submitted.

Tillsonburg.

After several visits by our representative to Tillsonburg, a power by-law for 500 h.p. at $30.50 per h.p. per year at 13,200 volts, and a money by-law to authorize the village to raise $25,000, were submitted to the ratepayers and carried on January 16th, 1909.

A contract was signed for 500 h.p. at 13,200 volts at $30.50 per h.p. per year, and an estimate prepared on the cost of the transforming and switching equipment and the material required for the distributing and street lighting system.

The Council of the Town passed a resolution on September 26th, 1910, authorizing the Commission to act as Consulting Engineer for the town in connection with the purchase and erection of the necessary apparatus and material for use in the Tillsonburg sub-station. Specifications were accordingly prepared and contracts awarded for all electrical equipment required. This apparatus was installed and placed in operation on July 1st, 1911.

A number of inquiries had been received from the rural districts and villages in the vicinity of Tillsonburg for information relative to Hydro-Electric power, and investigations have, therefore, been made of the district which includes portions of the Townships of Middleton, South Norwich, Durham, also the villages of Burford, Burgessville, Otterville, Courtland and Mount Salem.

Tintern.

An inquiry was received from Tintern on September 11th, 1911, regarding the procedure to follow in applying for power.

The Commission supplied the necessary information on September 12th.

Toronto.

The City of Toronto maintains its own Engineering Department and as a result the engineering details for stations and equipment were arranged before being presented to the Commission for approval, although a number of enginering questions required our co-operation.

Arrangements were made whereby the city was permitted to install a portion of their electrical equipment in the Commission's transformer station. All apparatus installed here was approved, the original specifications being examined before tenders were called for, as well as the successful proposals, before contracts were awarded by the city. After the transforming and switching equipment had been installed in this and other stations constructed by the city, a complete

inspection was made of the entire layout covering all details of construction. All plans and specifications were examined in detail by the Engineers employed to do this work, so that they would be thoroughly familiar with the apparatus.

The City of Toronto supplies the Town of North Toronto with light and power at the same rates charged within the city limits.

The question of rates to be employed for power was discussed at great length. In preparing their schedule, the city presented a plan, and numerous examples were worked out to demonstrate the manner in which the customers' bills would be affected. After a complete and exhaustive study, and many conferences attended by the engineers of the city and Commission, a system of charges was finally approved and adopted.

Power was first delivered to the City of Toronto on March 24th, 1911. The maximum load taken during the first month of operation was 805 h.p., and for October 3,318 h.p.

Victoria Harbour.

A resolution was passed by the Council of the Village of Victoria Harbour on April 26th, 1911, requesting the Commission to submit an estimate on the cost of power supplied from the Simcoe Railway and Power Company's lines. An engineer visited Victoria Harbour on May 2nd, 1911, and interviewed the Reeve and village Clerk.

An estimate was prepared showing the cost of constructing a 25,000 volt line from the Simcoe Railway and Power Company's line, one and one-half miles to Victoria Harbour, and installing a small sub-station equipped to step down from 25,000 to 220 or 110 volts, for distributing purposes, in the village. An estimated cost of $29.58 per h.p. per year was submitted for 100 h.p. on an assumed cost of power of $19.00 per h.p. per year to the Commission.

Walkerville.

See Windsor.

Wardsville.

A resolution of Council was received from Wardsville on April 12th, 1911, requesting the Commission to submit estimates and other information in connection with a supply of Hydro-Electric power.

The necessary information for procedure, a blank resolution and a copy of the Rural Act were supplied them on April 21st.

Waterdown.

Estimates were prepared on the cost of supplying power to the police Village of Waterdown and the works of the Dominion Sewer Pipe Company located in the vicinity, and also on the cost of a street lighting and distributing equipment for the village. These estimates were submitted to the village and the Company for their consideration, and a contract between the Dominion Sewer Pipe Company and the Commission for 150 h.p. at 2,200 volts at $32.50 per h.p. per year was drawn up and signed on September 19th, 1911. (See contracts with Municipalities).

A by-law was submitted and signed by the ratepayers of Waterdown on May 22nd, 1911, authorizing the Municipal Council of the Corporation to contract for a supply of electrical power from the Commission.

Waterloo.

A resolution was passed on October 22nd, 1909, by the Town Council of Waterloo, requesting the Commission to act as Consulting Engineer for the Town. Specifications for the necessary electrical apparatus to be installed by the town were submitted to the Commission for approval. After installation the equipment was inspected and power delivered on November 13th, 1910.

A schedule of rates has been prepared by the town, submitted to the Commission for approval, and adopted.

Welland.

Application has been received from the Town of Welland asking for an estimate on the cost of supplying 200 h.p. The application is now under consideration.

Weston.

Application was received from the Village of Weston for an estimate on the cost of supplying 250 h.p., and a figure of $29.25 per h.p. per year was submitted for their consideration. A second estimate was submitted October 1st, 1910, covering the cost of the necessary apparatus and materials for adapting the present system for Hydro-Electric power. A contract for 250 h.p. at the above price was signed in June, and Messrs. Mitchell and Mitchell were appointed consulting Engineers for the Village, to prepare specifications on the transforming and switching apparatus and plans for the station. After contracts had been awarded, the Engineering Department of the Commission was appointed Consulting Engineers, and acting in this capacity supervised the installation of all apparatus. Our representative spent at least one day a week in the village inspecting the constructions in their various stages, and at the same time arranged the work in connection with the local distribution system. The Purchasing Department of the Commission acted as Purchasing Agent for the supply of all materials required for the distribution system such as poles, wire, and other line material, transformers, meters, street lighting brackets, etc.

A schedule of rates, which is a modification of the City of Toronto system, for power and light was prepared, submitted to the Commission for approval, and adopted.

Power was first delivered to the Village of Weston on August 4th, 1911. Their maximum load for the last current month was 80 h.p.

Wiarton.

An application was received from the Town of Wiarton for an estimate on a supply of 1,600 h.p. Conditions here are being investigated in connection with those in other municipalities in the Georgian Bay District. (See Report on Durham District.)

Woodstock.

Though the engineering in connection with the installation of equipment for the use of the town was taken care of by a firm of Consulting Engineers, yet all details were referred to the Commission for approval. Arrangements were also made for the town to instal a portion of their equipment in the Commission's transformer station. A great many other details were brought up and disposed of satisfactorily, among others being the question of rates.

Power was first delivered to Woodstock on November 30th, 1910, their load for the first month of operation being 450 h.p. During the last current month the City of Woodstock took 804 h.p. from the Commission's lines.

Yarmouth Township.

Application for power was received from this township on July 8th, 1911. An engineer visited the district on August 1st, 1911, and requested additional information. Later, on August 31st, a letter was sent to the Township Clerk requesting information, which, as yet, has not been received.

York Township.

A resolution was passed on June 6th, 1911, by the Council of York Township, requesting the Commission to submit estimates on the price of power for that district. The Commission advised on June 7th, that more information was required and enclosed copies of the Rural Act.

Department of Public Works.

Hamilton Asylum.

We were requested by Mr. E. R. Rogers, Inspector of Asylums, on December 28th, 1909, to send one of our engineers to the Hospital for the Insane at Hamilton to examine the building and grounds with a view to using electric energy for light as soon as it could be supplied by the Commission.

An engineer was sent on January 11th, 1910, to investigate conditions at this Institution, and on January 27th a report was submitted to the Department of Public Works containing an estimate on the cost of adapting this plant for Hydro-Electric power. The estimate covered the cost of installing the necessary apparatus to replace the steam pumps, steam and gas engines then in use, and supplying energy for lighting. The capacity of the station and equipment was figured at 200 h.p. and provision made for additional equipment required by a future load resulting from the use of elevators and ventilating apparatus.

It was proposed to install the station equipment in the Queen Street Pumping Station with the exception of the constant current transformer for outside lighting which was to be placed in the fire-hall. A three-stage turbine pump direct connected to a 2,200 volt motor was to be employed to replace one of the steam pumps, this would be controlled by an automatic float switch at the upper reservoir since it was intended to pump directly from the city main instead of from the tank. The line switch was to be electrically operated from a convenient point at the main building. By this arrangement it would be possible to dispense with an attendant at the Queen Street pump-house.

A direct connected centrifugal pump and motor were to be installed for pumping from the reservoir to the various tanks, and one of the present steam pumps held as a reserve since high pressure steam was required in the building and thus steam would be available at all times for this and also for the steam fire pump.

It was further suggested to the Department that one of the boilers at the Queen Street pump-house could be heated with gas. The following estimates were prepared, showing the saving which might be affected by the use of Hydro-Electric power, and the expense of adapting their plant, and forwarded to the Provincial Secretary on January 27th.

Present cost of power for incandescent and arc lamps, and a 1 h.p. motor	$3,187 00
Coal and labour at Queen Street pump-house	1,790 00
Gas for bakery gas engine	24 00
Coal for laundry	450 00
Coal for pumps	325 00
Arc lamps, carbons and trimming	50 00
Oil, waste and repairs	100 00
Total cost of power and light	$5,926 00
Annual cost for Hydro-Electric power:—	
100 h.p. at $23.00	$2,300 00
100 Tungsten lamps at $1.50	150 00
Depreciation on apparatus and line required	721 00
Total cost of power and light	$3,171 00
Net saving by using Hydro-Electric power	$2,755 00

Total capital cost estimated for installation of Hydro-Electric power	12,043 00
Extra for the line from the old to the new farm buildings, including new interior wiring and fixtures	2,350 00
Total estimated cost of installation	$14,393 00

ESTIMATES ON COST TO ADAPT PLAN FOR NIAGARA POWER STATION AND EQUIPMENT.

Estimates cover transforming equipment at Queen Street pump-house with 2,200 volt lines from there to Asylum. Two turbine pumps are included to replace present steam pumps, and motors for bakery and laundry, to replace gas and steam engines respectively. No fire pump is included.

	Capital Cost.	Per Cent.	Depreciation.
Addition to pump house	$800	2	$16
Incoming 13,200 volt line panel	1,000	6	60
Lightning arrester equipment	700	6	42
2 2,200 volt feeder panels	800	6	48
3 50 kw. transformers, 13,210/2,200	2,100	6	126
	$5,400	.....	$292
ADDITIONAL APPARATUS REQUIRED.			
1 259,000 gal. turbine pump, 140 lb. pressure, 35 h.p., 2,200 volt motor, direct connected, installed	1,300	6	78
1 250,000 gal. turbine pump, 50 lb. pressure, 15 h.p. 110 volt motor, direct connected, installed	900	6	54
3 15 kw. transformers, 2,200/110 volt, installed at $225.00	675	6	41
6 10 kw. do. do. do. $190.00	1,140	6	68
6 5 kw. do. do. do. $110.00	660	6	40
1 C.C. regulating transformer, 4 kw., with control panel, installed	550	6	33
50 series lamps, brackets and shades, installed at $10.00	500	6	30
1 5 h.p. 110 volt motor for bakery, installed	95	6	6
1 25 h.p. motor for laundry, installed	500	6	30
2,200 volt line from Pumping Station to Asylum, ¾ mile, No. 4 copper, 2 circuit	900	8	72
Line from old to new farm buildings, 1 mile, using present telephone poles with extensions to same	500	8	40
New inside wiring and fixtures	1,500	6	90
Repairing present wiring	500	6	30
New lines for street lighting and distribution	400	8	32
	$10,120	.....	$644
Station and equipment (brought forward)	5,400	.....	292
	$15,520	.....	$936
Engineering and contingencies, 12 per cent	1,862	.....	112
	$17,382	.....	$1,048
Interest during construction, 1½ per cent	261	6	16
	$17,643	.....	$1,064

We were advised on April 7th by the Department of Public Works that an appropriation of $12,000 had been granted for the work at the Hamilton Asylum for the Insane.

Specifications were then prepared covering station and service transformers, switching and protective apparatus and two motor driven turbine pumps, and approved by the Deputy Minister of Public Works on August 9th.

They were then forwarded to the following:—

The Canadian General Electric Company, Toronto.
The Canadian Westinghouse Company, Hamilton.
Allis-Chalmers-Bullock, Ltd., Montreal.
The Central Electric and School Supply Company, Toronto.
Messrs. Chapman & Walker, Toronto.
Messrs. Kilmer, Pullen & Burnham, Toronto.
Siemens Bros. Dynamo Works, Toronto.
Ferranti, Ltd., West Toronto.
The Packard Electric Company, Toronto.
The Lancashire Dynamo and Motor Company, Toronto.
The Northern Electric and Manufacturing Co., Toronto.
The Sunbeam Incandescent Lamp Company, Toronto.
The Canadian Buffalo Forge Company, Montreal.
The Gould Pump Company, Ltd., Toronto.
The Smart Turner Machine Company, Ltd., Hamilton.

The tenders received for equipment at the Hamilton Asylum were forwarded on September 8th, after careful consideration, with our recommendations, to the Department of Public Works for their approval. Contracts for the apparatus were awarded to the Canadian Westinghouse Company, Hamilton, for $6,070, and signed March 11th, 1911.

The proposed arrangement of the apparatus in the Queen Street station pump-house was forwarded to the Canadian Westinghouse Company on March 25th, to assist them in the wiring lay-out.

We received permission on May 9th from the City of Hamilton to connect the three-inch turbine pump in the Queen Street pump-house direct to the City main.

During July and August changes were made in the Queen Street sub-station to adapt it for the electrical equipment and turbine pump. All electrical apparatus and pumps were installed and in use by November 1st. The inspection of this work was attended to by a representative who spent one day a week on the work.

The following work has also been accomplished by our linemen:—

Wiring in conduit for lighting the Queen Street pump-house.
Pole line from the pump-house to the Asylum by way of Queen Street.
Erection of new lighting system for the grounds.
Pole line to Hickory Farm.
Removing the old 60 cycle service transformers, erecting the new 25 cycle service transformers and making two wire secondary connections to building.
Wiring for lighting the bowling green.

No appropriations were made during the year to secure the necessary changes in the wiring to place it in first-class condition, although this action was advised, but it is understood that measures will be taken to provide for these changes next year.

Ontario Agricultural College.

We received a request from the Provincial Department of Agriculture on December 29th, 1909, asking that a report be submitted, giving an estimate on the cost of the changes necessary to adapt the plant of the Ontario Agricultural College for Hydro-Electric power.

The following estimate was forwarded to the Deputy Minister of Agriculture on January 27th, 1910:

ESTIMATE FOR ONTARIO AGRICULTURAL COLLEGE.

Assuming that a branch 13,200 volt line be run to the College, the equipment needed would be as follows:—

Items.	Capital Costs.	Per Cent.	Annual Charges.
1 three-phase 13,200 volt set of lightning arresters	$375	6	$23
1 set of 3 disconnecting switches for 13,200 volts	51	6	3
1 set of 3 choke coils for 13,200 volts	123	6	7
3 50 kw. 13,200-220 volt transformers, O.I.S.C. at $675	2,025	6	122
1 13,200 volt incoming line panel	600	6	36
Since d.c. motors are now installed we would advise maintaining the direct current system and therefore the following equipment would be needed to convert the 220 volt a.c. to 220 volt d.c.			
1 100 kw. motor generator set, induction motor and 200 volt 100 kw. direct connected generator	4,200	6	252
1 50 h.p. 220 volt, 720 r.p.m. induction motor to drive present belted 30 kw. d.c. generator	800	6	48
(The two steam driven 50 kw. units to be retained for peak work in winter and possible reserve.)			
To replace the isolated steam plant in the dairy stables we would advise;			
1 8 h.p. 1,475 r.p.m., d. c. motor to drive compressor	155	6	9
1 10 h.p., 1,250 r.p.m., d.c. motor for other work now done by engine	215	6	13
To replace the steam equipment now in use at the main building, we would advise:			
1 a.c. motor driven compressor (90 lb. per sq. in.)	2,000	6	120
1 10 h.p., a.c. motor driven pump (7,000 gal. per hr. against 70 lb.)	900	6	54
1 a.c. motor driven pump (500 gal. per min. against 125 lb.) for fire purposes	2,000	6	120
1 15 h.p., a.c. motor to drive the present ice machine	350	6	21
	$13,794	.....	$828
Engineering and contingencies at 12 per cent	1,655	.....	99
	15,449	.....	927
Interest during construction, at 1½ per cent	231	6	14
Total capital cost	$15,680	.....	$941

This estimate was later supplemented by the following report on February 8th, resulting from further investigations:—

REPORT ON THE SAVINGS TO BE EFFECTED BY EMPLOYMENT OF ELECTRICAL ENERGY AT ONTARIO AGRICULTURAL COLLEGE.

The present power plant at the Main Building furnishes electric light and power for the entire College, twelve months of the year, and also pumps all water required by the College for the same period. The exhaust steam from these engines is used to heat the Main Building during eight months of the year. Live steam is used from this plant to heat the Chemical Building, Library, Physics Building, two dwellings and the Gymnasium for eight months of the year.

The three McDonald Buildings are heated by a separate plant.

The Horticultural Building has a hot water plant. The Dairy has a small steam plant.

The average Coal bills for the various plants are:—

Main Plant	$12,989 00
McDonald Buildings	2,980 00
Dairy	830 00
Horticultural Buildings	680 00
Total	$17,479 00

We propose to operate the generators, pumps, compressor and ice machine at the Main Plant by motors, and to replace the engine at the Dairy with motors.

The following figures represent the estimated saving to be effected by the use of Hydro-Electric power in this institution:—

Saving in coal at main plant, 2,168 tons at $4.13	$8,954 00
Less heating value of exhaust steam	2,980 00
Saving	$5,974 00
Saving in labour, one man	640 00
Saving in oil and waste	150 00
Saving in coal at Dairy	430 00
Gross saving	$7,194 00
Cost of Hydro-Electric power, present peak load 88½ h.p.:	
88½ h.p. at $32.00	$2,832 00
Depreciation on entire equipment proposed	941 00
	$3,773 00
Net saving effected by using Hydro-Electric power	$3,421 00
Estimated cost of equipment necessary for installation of Hydro-Electric power	$15,680 00

President Creelman recommends that some outside lighting be included in the estimate. This can easily be accomplished to the extent suggested, and readily furnished, at an initial cost of $100.00.

We were advised on April 7th by the Department of Public Works that $15,000 had been appropriated for adapting this plant for the use of Hydro Electric power.

At the suggestion of Mr. Green, the Engineer of the College, we prepared and submitted the following supplementary recommendations to the Provincial Department of Public Works on August 29th, 1910:—

SUPPLEMENTARY RECOMMENDATIONS ON SPECIFICATIONS AND APPLICATIONS FOR TENDERS FOR ONTARIO AGRICULTURAL COLLEGE.

One set of 13,200 volt lightning arresters.
One set of 13,200 volt disconnecting switches.
One set of 13,200 volt choke coils.

Three 75 kw. 13,200-220 volt transformers.

One 13,200 volt incoming line panel.

All of this additional equipment to be installed in the present Dynamo room.

One motor generator set consisting of one 100 kw. 220 volt d.c. generator, direct connected to a 220 volt synchronous motor, together with the necessary starting equipment.

One 25 kw. 220 volt generator, direct connected to a 220 volt induction motor with the necessary starting equipment.

(The present belt driven 35 kw. generator is very old, and the capacity low. In order to carry the light load late at night and through the day-time a 25 kw. set would be much more efficient than a large one.)

One motor driven Compressor to replace the present steam driven compressor in the dairy stables. The present compressor is 10 in. diameter with 10 in. stroke, pumping against 45 lb. at about 40 r.p.m. This capacity not to be increased. The motor to be 220 volt direct current.

One 10 h.p. 220 volt d.c. motor to replace present steam engine.

One motor driven compressor, 25 per cent. greater capacity than the present steam driven compressor, which is of 12 in. diameter, with an 18 in. stroke, pumping against 85 lb. at about 90 r.p.m. This compressor to pump from the deep well.

One motor driven pump for general service work, with a capacity of 8,000 gallons per hour against 70 lb. to replace the present service pump, and to connect with the present suction and discharge pipes which should both be 4 inches.

One motor driven fire pump, with a capacity of 500 gallons per minute against a pressure of 125 lbs. The present steam driven fire pump to be retained as an auxiliary for all services. The new pump should have a 6 in. suction and a 6 in. discharge.

One motor driven ice machine, with a direct current motor of sufficient capacity to drive the present ice machine, two circulating pumps and one fan.

Two motor driven boiler feed pumps, with a capacity of 200 gallons per hour. (This item is added at the request of Mr. Green, the Engineer.)

Specifications covering the station transformers, switching and protective apparatus, two motor generator sets, two electrically driven air compressors, two electrically driven turbine pumps and two electrically driven rotary boiler feed pumps: also form of tender and instructions to bidders were prepared for the College and forwarded on September 14th to the Department of Public Works for their approval.

A list of the manufacturers to whom applications for specifications were to be forwarded were also supplied.

After these specifications had been approved by the Department of Public Works they were forwarded to the following firms and tenders called for not later than 5 o'clock, October 5th:

Canadian General Electric Co., Toronto.
Canadian Westinghouse Company, Hamilton.
Allis-Chalmers--Bullock, Limited, Toronto.
Chapman & Walker, Toronto.
Kilmer, Pullen & Burnham, Toronto.
The Siemens Bros., Dynamo Works, Toronto.
The Packard Electric Company, St. Catharines.
The Lancashire Dynamo and Motor Company, Toronto.
The Gould Pump Company, Toronto.
The Canadian Rand Company, Toronto.

Our recommendations for the placing of contracts for the electrical and pumping apparatus for the College were forwarded, after careful consideration, to the Department of Public Works on November 26th, for their approval, and on December 16th, we were asked to draw up the contracts in proper form.

Contracts for the above apparatus were awarded as follows:—

Transformers—The Packard Electric Company, St. Catharines	$2,000 00
Switching apparatus—Siemens Bros. Dynamo Works, Toronto	2,500 00
Motor Generator sets and D.C. Motors—Kilmer, Pullen & Burnham, Toronto	6,407 75
Lightning Arresters, etc., Air Compressors and Pumps—Canadian General Electric Co., Toronto	4,681 00

These contracts were signed the first part of March, and drawings indicating the necessary changes in the present electrical lay-out, in addition to the changes to the old building, were forwarded to the Department of Public Works.

The wiring lay-out for the above apparatus was forwarded to the different contractors in March, and the numerous engineering details of work supervised by our Engineering Department.

An Engineer was sent to the Packard Electric Company on July 25th, to witness the tests on the three 75 kw. sub-station transformers. The tests were approved and the transformers ordered shipped immediately. Tests were also witnessed on the domestic and fire pumps at the Canadian General Electric Company's works and these were also ordered shipped in September.

During August, September and October our Engineer spent one day a week in Guelph inspecting the construction work.

The installation of the sub-station apparatus was rushed and at the end of October we estimated that all equipment, with the exception of the pumping apparatus, would be ready for operation on November 15th.

London Asylum.

At the request of the Department of Public Works, an engineer was sent in January, 1910, to the Hospital for the Insane at London, Ont., to secure sufficient information for an estimate on the cost of adapting the plant for Hydro-Electric power.

The following estimate was submitted to the Provincial Secretary on January 24th.

ESTIMATE FOR LONDON ASYLUM.

	Capital Cost.	Per Cent.	Annual Charges.
Assuming that the Asylum is supplied with power by a 13,200 volt line run from the H.E.P. Commission's station to the West gate of the Asylum Grounds, the equipment needed would be as follows:—			
1,200 ft. of 13,200 volt line in Asylum Grounds at $500.00 per 1,000 ft	$600	6	$36
Building—proposed sub-station 30 ft. by 32 ft. by 16 ft. high	2,500	2	50
1 set of 13,200 volt lightning arresters	375	6	23
1 set of 13,200 volt choke coils	200	6	12
1 set of 13,200 volt disconnecting switches	125	6	8
3 single phase 13,200-2,200 volt transformers, 50 kw. each	2,025	6	122
3 single phase 13,200-575 volt transformers, 30 kw. each	1,500	6	90
1 575 volt feeder panel for motor circuit	350	6	21
2 2,200 volt feeder panel, for lighting	800	6	48

ESTIMATE FOR LONDON ASYLUM.—*Continued.*

	Capital Cost.	Per Cent.	Annual Charges.
Using a 2,200 volt distribution to the various buildings for lighting and small power, such as ventilators, and stepping down to 110-220 volts for three wire distribution at each building, the following transformers will be needed:—			
Main building and adjacent buildings, 3-30 kw. trans	1,050	6	63
Hospital, 1-25 kw. trans	300	6	18
North building, 1-25 kw. trans	300	6	18
Houses and out-buildings, 2-5 kw. trans	100	6	6
Houses and out-buildings, 3-2 kw. trans	100	6	6
The cost of wiring the various buildings would be as follows: Conduit is recommended since it is the only safe construction, but if concealed it would require too much ripping up of the floors, etc., so we have estimated on exposed conduit:			
Wiring of main building with fixtures (743 outlets)	5,575	2	112
Infirmary (wiring and fixtures already in place) additional cost for wiring for motors	75	2	2
Wiring of north building, refractory wards (380 outlets)	2,850	2	57
Bursar's house	125	6	8
Church (without fixtures)	113	2	2
Coal sheds	40	6	3
Root house	30	6	2
Entrance lodges	42	6	3
Piggery	25	6	2
Slaughter house and barns	180	6	11
Workshops	90	6	5
Skating rink	45	6	27
Laundry	120	2	2
Stables and coach house	50	2	1
Cottage for butcher	66	6	4
Storehouse	70	6	4
3 cottages (52 outlets, each at $30.00)	1,170	2	23
Medical superintendent's residence	180	2	4
Hothouse	80	6	5
Extra for power purposes through various buildings	490	2	10
In order to replace present steam equipment operating at great disadvantage at various places we would recommend the installation of the following equipment:—			
1 motor for sewerage pump	450	6	27
1 motor for laundry	450	6	27
1 motor driven fire pump, capacity for 3-1⅛ nozzles at 116 lb. 100 h.p. motor 2-stage pump	2,806	6	168
1 motor for ash hoist in boiler room	125	6	8
1 motor for blower in boiler room	125	6	7
1 motor for machine shop	125	6	8
1 motor for kitchen fan	95	6	6
1 motor to drive mixer in bake shop	250	6	15
1 motor to drive picking machine	95	6	6
1 motor for carpenter's mill	390	6	23
1 motor to drive dryers in laundry	125	6	7
1 motor to drive mangle in laundry	230	6	13
1 motor for kitchen coffee mill, etc	80	6	5
1 motor for ice cream freezer, etc	95	6	6
2 motors for dumb waiters (in main building)	150	6	9
1 motor for passenger elevator, car, motor, etc	450	6	27
2 dumb waiter motors (in infirmary)	150	6	9
2 dumb waiter motors (in north building)	150	6	9
1 motor for feed cutter	125	6	8
1 motor for feed grinder	340	6	20
1 motor for sausage machine	85	6	5
20 irons in store rooms and cottages	70	10	7

ESTIMATE FOR LONDON ASYLUM.—*Continued.*

	Capital Cost.	Per Cent.	Annual Charges.
40 irons in laundry	140	10	14
15 small electrical cookers	120	10	12
5 ceiling fans in main kitchen	175	6	11
1 ceiling fan in hospital	35	6	2
1 ceiling fan in north building kitchen	35	6	2
12 18-in. ventilating fans	780	6	47
15 12-in. ventilating fans	675	6	41
1 motor and compressor for two deep wells, each to give 100,000 gallons per day, 75 foot lift	1,800	6	108
For lighting grounds and drives, two miles of series tungsten lighting would be required. The station apparatus and line material required for the outside lighting and for the 2,200 volt distribution would be as follows:—			
1 4 kw. regulating transformer, 2,200 volts with control panel	550	6	33
50 series lamp brackets and shades installed at $10.00	500	5	30
2,200 lb. No. 6 wire for lighting and 2,200 volt distribution, erected at 20 cents	440	2	9
88 30 ft. poles with cross arms and insulators complete, erected at $11.00	968	8	77
	$34,914	.....	$1,614
Engineering and contingencies, 12 per cent	4,190	.....	194
	$39,104	.....	$1,808
Interest during construction, 1½ per cent	587	.....	27
	$39,691	.....	$1,835

The Provincial Secretary was further advised on February 8th, as follows:—

The buildings of the Asylum are at present lighted by gas, coal-oil lamps and lanterns. The gas pressure has been a subject of complaint ever since the system was installed. The attendants use lanterns on their table to see to eat, and the patients cannot read or play cards after nightfall until the load becomes lighter and the pressure rises. The barns with their stock and supplies of hay and grain are lighted only by the attendants' lanterns. The value of stock here alone often exceeds $7,000.00. The patients ignite strips of paper in the gas jets to light their pipes, and then drop the burning paper on the floor. A large number of fires are reported, but fortunately none have so far proved disastrous. A more complete report relative to the fire hazard may be obtained from Captain Crawford, who recently made an inspection of the Asylum. None of the patients' rooms have light, and the attendants carry lanterns during the night. The entire gas installation should be overhauled, if further employed, since it is antiquated, inefficient, unsafe, and does not possess sufficient capacity to provide for extra lights desired.

At present there are only about four lamps situated outside the building. Additional lights should be installed for safety and police purposes.

The ventilation in the wards, halls and lavatories is bad, and motors to ventilate these should be installed.

The present steam equipment is old, the pumping engine having served since the Asylum was built.

The sewage, laundry and water-works engines are 25 to 30 years old, and the barn engine, which is 16 years old, is in bad condition, and the boilers should

be replaced by some with greater capacity. The main building is heated by old inefficient boilers fired by hand. Were the power requirements removed from the new boilers, they would furnish all the steam heat needed not only by the main building but also by the cottages. The Superintendent's house, and the hospital are heated by separate equipments.

The laundry now requires two stoves to heat the flat irons, and the coal consumed, which amounts to half a ton a week, must be carried by hand to the Laundry.

The only need for steam at present, outside of that required for the engines, is in the kitchen, where live steam is used for cooking purposes and the return utilized to heat the water for the lavatories and baths.

The annual cost of gas in 1908 was $4,522.00; for the ten months ending October 30th, $3,522.00, which will be further increased by the consumption for the two heaviest months, and an annual charge of $200.00 for a governor. Six barrels of coal-oil, at $8.50 a barrel, are used a year.

The annual cost of coal in round numbers is $14,000.00 This varies slightly from year to year. Slack at $3.25 a ton delivered, and hard coal at $5.00 to $6.25 a ton delivered is used. During July 61,600 lbs. of this coal are consumed per week, and 124,400 lbs. per week in December at the main plant. The difference between the two for six months is chargeable to heating, or one-third of this consumption. Some of the consumption is chargeable to cooking, etc. Allowing this, on a generous assumption, as 25 per cent., we find the power cost in coal to be 61,600 lb. by 52 weeks by 75 per cent. at $3.25 = $5,205.00.

Another saving could be effected by using 485 tons of slack at $3.25 in the main plant for heating purposes in the Hospital, cottages, and superintendent's residence instead of 485 tons of hard coal now used at $6.25 per ton, less 100 tons consumed for cooking purposes. 385 tons at $3.00 = $1,155.00

The coal used in the laundry stoves—one-half ton per week at $6.25 per ton, would be saved.

26 tons at $6.25 = $162.00.

The saving in labour (very conservative) would be:—

One man at $30.00 for 12 months = $360.00.

A saving in engine oil, two (2) barrels at $28.00 = $56.00 would also result.

The aggregate of the above items, which are the direct savings, would be $11,511.00.

The comparative cost for electric power would be:—

Say, 175 h.p. at $32.00	$5,600 00
Depreciation (see estimate)	1,835 00
	$7,435 00

Or a saving of $4,076.00 per year.

Many reasons for making this installation have already been mentioned, but we would add a few features which are not included in the comparative costs.

We include the cost of a fire-proof building, in which the electrical apparatus and the fire pumps will be placed since the fire pump is now in a dangerous location.

We have estimated on 2,500 lamps in comparison with the 1,100 to 1,200 now in service.

We have included apparatus which is needed for a second deep well.

We have included a complete lighting system for the roads and walks of the grounds, between the buildings, etc.

We have estimated on lamps that will give full rated candle power per lamp, and not lamps such as at present are used.

We have estimated on motor horse power for apparatus needed but which is not operated due to lack of power.

The patients should have light to read by so that they may enjoy the hours after dark. Electric lamps would offer reduced fire hazard, and lastly we have estimated on safe and fire-proof wiring.

There is every reason for the installation, with only the one objection, that of first cost.

We were advised by the Deputy Minister of Public Works on April 7th, that $25,000.00 had been appropriated for adapting this plant for Hydro-Electric power and were asked to have the engineering department begin the work as soon as possible.

We advised the Department of Public Works on May 2nd that we required blue prints of the various buildings in preparing our plans and specifications and in outlining the work to be done, and asked them to forward to us blue prints of all the buildings.

We also pointed out that the appropriation for the London Asylum was less than the estimated cost of the apparatus and the wiring which was included in our estimate, and asked for their advice as to what part of the apparatus and wiring they wished installed with the appropriation allowed.

The Department of Public Works requested us on January 4th, 1911, to prepare specifications on the requirements of the London Asylum for use of Niagara power for lighting the buildings and grounds and for the installation of electric power:—

They proposed to install 1,500 16 c.p. lamps, and 118 32 c.p. lamps for lighting the several buildings and grounds; electric power in pumping the water supply; an additional fire pump and also one for pumping sewage from the receiving tank to the receiving farm; motors to drive machines in the barn, machine shop, carpenter shop, laundry, the kitchen fan and the ash hoist.

When laying out the interior wiring and the outside wiring, we requested advice from the proper authorities regarding the locations, number and sizes of lamps and the equipment which they desired.

When preparing our plans for the construction of the transmission line from the station east of London to the London Asylum, we pointed out to the Department of Public Works that from Dundas St. to the side gate of the Asylum the road was lined with very heavy trees, principally maples, which would necessitate our using very high poles or else considerable trimming to prevent the trees interfering with the line, and asked their permission to erect the pole line across the asylum field; that is, from Dundas Street to the west side gate. We received permission on May 9th to place the poles in the Asylum field.

In planning the terminal station for the line from the Commission's station to the Asylum, we suggested the construction of a fire-proof building and pointed out that this station would contain the high tension lightning arresters and line equipment, the stepdown transformers, control apparatus, and would also be large enough to provide for the installation of a motor-driven service pump and a motor-driven fire pump, and also provide for future extension.

After being prepared, specifications on the wiring material for the various buildings were submitted and tenders called for, with the permission of the Department of Public Works, from the following:—

Eugene F. Phillips, Montreal.
R. E. T. Pringle & Co., Montreal.
John Forman Electric Supply Co., Montreal.
Conduits Co., Ltd., Toronto.
A. E. Greene & Co., Toronto.
C. W. Bongard & Co., Toronto.
Can. Johns Manville, Toronto.
Chapman & Walker, Toronto.
Keith and Fitzsimons, Toronto.
Central Electric and School Supply Co., Toronto.
Northern Electric and Mfg. Co., Toronto.
Can. General Electric Co., Toronto.
Rogers Electric Co., Toronto.
McDonald & Willson, Toronto.

The schedule of tenders received on the wiring material, together with our recommendation, was forwarded to the Department of Public Works on May 20th and upon securing their approval, the contract was awarded to the Canadian General Electric Co., Ltd., Toronto.

Specifications were prepared for the sub-station equipment, consisting of station transformers, switching and protective apparatus, motors, service transformers and pumping apparatus, in May, and one copy was forwarded to the Department of Public Works on May 18th for their approval. Approval was received on the same date.

Specifications, Form of Tender and instructions to Bidders, covering this apparatus, were forwarded to the following on May 19th:—

Central Electric & School Supply Co., Toronto.
Alfred Collier & Co., Montreal.
Gould Pump Co., Toronto.
Canadian General Electric Co., Toronto.
Canadian Westinghouse Co., Toronto.
Allis-Chalmers-Bullock, Ltd., Toronto.
Canadian Crocker-Wheeler Co., St. Catharines.
The Packard Electric Co., St. Catharines.
Siemens Bros'. Dynamo Works, Ltd., Toronto.
Kilmer, Pullen & Burnham, Toronto.
Chapman & Walker, Toronto.
Vandeleur & Nichols, Toronto.
Northern Electric and Mfg. Co., Toronto.

After careful consideration, our recommendations relative to the awarding of contracts for this apparatus were forwarded to the Department of Public Works on June 8th, and, with their approval, contracts for apparatus were awarded as follows:—

The Step-down Transformers and Service Transformers were awarded to the Canadian Crocker-Wheeler Co., St. Catharines, for $2,800.00.

The Switching Apparatus, Lightning Arresters, Motors, Domestic Pump and Sewage Pump, were awarded to the Canadian General Electric Co., Ltd., Toronto, for $5,822.00.

The Fire Pump and Motor were awarded to Chapman & Walker, Toronto, for $1,400.00.

During July, detail drawings for the construction of the sub-station were forwarded to the Department of Public Works, the erection being started in the latter part of the month. A weekly inspection was made by one of our Engineers while the work was in progress.

Our engineer visited the works of the Canadian Crocker Wheeler Co., St. Catharines, to witness tests of the three 75 kw. transformers on September 29th. The transformers successfully withstood the tests, and on October 3rd we ordered that they be shipped immediately.

The sub-station structure was finished by October 15th.

All the transformers, about one-half of the motors, as well as part of the switching apparatus, had been received at the Asylum by October 31st, and approximately 75 per cent. of the wiring of the various buildings completed, and material erected for the lighting system about the grounds.

Kingston Asylum.

At the request of the Department of Public Works, an Engineer was sent to Kingston on August 10th, 1911, to ascertain the cause of a fire in the basement of the main building, and on August 11th a report was forwarded to the Deputy Minister of Public Works advising that this fire was caused by the local telephone wire coming in contact with a trolley wire, the blowing of the open linked fuses on the telephone rack in the battery room having set fire to the pine board on which they were mounted and partially destroying about thirty square feet of wall and ceiling as well as all the telephone wires in this room.

The report also pointed out that numerous changes were necessary in the present wiring so that it would conform to the Underwriters' requirements and suggested that an experienced wiring foreman be placed in charge of the repair work at the Asylum so that all the wiring could be placed in first-class condition as soon as possible.

Mimico Asylum.

At the request of the Department of Public Works an engineer was sent to Mimico Asylum in February, 1910, to examine the lay-out and prepare a report on the estimated saving which might be secured by adapting the plant for Hydro-Electric power.

The following report was submitted, giving the estimated saving in present annual charges:—

Allowance has been made for the heating value of the exhaust steam.

Pump House:—		
160 tons coal at $3.60	$576 00	
Labor	575 00	
House at $10 per month	120 00	
		$1,271 00
Lighting Station:—		
408 tons coal at $3.60	$1,469 00	
Labor	480 00	
		$1,949 00

Small Engines	
Estimate, based on average load of 30 h.p. 2,000 hr. per year 162 tons coal at $3.60	$583 00
Arc Lamp Carbons and Trimming	50 00
Saving in oil, Waste and Repairs	100 00
Total	$3,953 00
Annual Cost for Hydro-Electric power, 100 h.p. at $30.00	$3,000 00
80 Tungsten Lamps at $1.50	120 00
Total	$3,120 00

We were advised by the Department of Public Works on April 26th, 1911, that $10,000 had been appropriated for adapting this plant to Hydro-Electric power, and were asked to forward a report on the work required at the institution to adapt it to 25 cycle power.

Our engineer visited Mimico Asylum on May 22nd to examine the present electric and pump equipment, and the following report was submitted with an estimate of the cost of the installation of 25 cycle apparatus and pumps for this institution:—

REPORT ON MIMICO ASYLUM.

The following is an estimate on the installation of 25 cycle apparatus and pumps at the Mimico Asylum, to adapt the plant to Hydro-Electric power:—

Switchboard, including ammeter and plug; voltmeter and plug; 2 series transformers; 2 potential transformers; graphic wattmeter; oil switch and 3 two-pole single-throw knife switches, 60 amp. and fuses, mounted on oiled slate panels	$675 00
Three 15 kw. 2200/220/110 volt lighting transformers	700 00
Three 15 kw. 2200/550 volt motor transformers	700 00
One 10 kw. 2200/220/110 volt lighting transformer	125 00
One Fire Pump and motor, 2,200 volts	1,850 00
One Sewage pump and motor, 550 volts	350 00
One Domestic pump and motor, 550 volts, with automatic starter	950 00
Single-pole lightning arresters	100 00
Two 15 h.p. motors, 550 volts, laundry and shops	700 00
Lighting grounds and Lake Shore road	2,800 00
Lines to pumps	800 00
10% for engineering and contingencies	975 00
Interest during construction, 1½%	161 00
Total	$10,886 00

To take care of the sewage, we advise installing one vertical centrifugal pump direct-connected to a 550 volt motor, the recommended capacity of pump to be 125 Imperial gallons per minute. This pump should be installed in the well 12 feet deep.

For domestic supply of water we recommend a 250 Imperial gallon per minute turbine pump to work against a total dynamic head of 110 feet, including a maximum suction lift of 11 feet, through 2 ft. 10 in. elbows installed with the present filter. The filter would add 5 lb. pressure when 134 gal. per minute are passing through, and approximately 8 lb. when 250 gal. are forced through it. This pump should be operated automatically with an automatic motor starter and float switch for an open tank, approximately 1,200 feet distant from the pump.

The two Duplex steam pumps now installed we are advised are seldom operated simultaneously and then to supply 134 Imp. gal. per minute, and pump 80,000 to 100,000 gallons per 24 hours. The maximum rating of each, however, is 250

Imperial gal. per minute, so that it might be advisable to keep one of these steam pumps connected as an auxiliary.

For power purposes we recommend a 2200 volt motor driving a 150 Imp. gal. per minute turbine pump against a total dynamic head of 280 feet, including a maximum suction lift of 11 feet, through 2 ft. 10 in. elbows, and advise placing the automatic starter for the fire pump in the sub-station up at the main buildings.

We could make our pump specifications cover all valves and fittings.

To provide lights for the theatre hall, as well as along the Lake Shore road, we advise placing a 10 kw. transformer near the west entrance gate.

For lighting the grounds, we recommend an underground system in three sections, using 35 single light posts about 8 ft. high, and armoured cable.

Brockville Asylum.

We were advised on May 30th, 1911, by the Department of Public Works, that an appropriation of $2,000 had been made for the installation of electrical wiring and lamps at the Hospital for the Insane at Brockville and were asked to send an engineer to investigate and advise the Department with regard to this work.

An engineer was sent to Brockville in July to look over the lay-out at the Asylum and the following report submitted to the Department of Public Works on September 9th:—

REPORT ON BROCKVILLE ASYLUM.

Acting in accordance with instructions we have made a careful investigation of the requirements at the Brockville Asylum, and as a result recommend that the present appropriation of $2,000 be expended for lighting the grounds and wiring the rink. We believe that this was the purpose for which the appropriation was made and under the existing conditions is most needed, since at the present time the grounds are not lighted and the rink is insufficiently lighted by gas.

The main buildings are now illuminated by gas and the expense of changing from this to a system of electric lighting would be so great that your appropriation is hardly sufficient to begin the work, which should be left for a subsequent appropriation, and should you desire it we will submit an estimate on the cost of properly wiring all buildings, together with an estimate on the cost of the motors and other electrical equipment which we would recommend.

The main item in a system for lighting the ground would be the selection of a satisfactory light standard. We suggest the use of design No. 37900, shown in the attached catalogue of the Morris Iron Company. Twenty-five of these standards or others similar to this type would be required, together with the necessary underground wiring material. We have estimated that the total cost of this work would be $1710, not including labor, as this underground work would largely be done by the local rough labor.

The cost of a lighting installation at the rink, in conduit, we have estimated at $145.00, not including labor.

As an alternative to this recommendation, we have prepared an estimate on the cost of wiring the Executive portion of the main building in concealed iron conduit, the cost including the lighting fixtures. This would give a good start in the work of wiring the buildings, and could be continued through the remainder of the main building and the other buildings in subsequent years as the appropriations are made. We have estimated that the cost of the material for this work would be

$525.0. The fixtures should cost about $500; this, however, depends upon the choice of fixtures made. For labor $875.00 is allowed on account of the high labor cost of installing concealed conduit work in a completed building. It was our intention to have all conduit in the main building and cottages concealed where the pipe comes down the wall to the switches and to cut chases in the masonry deep enough to lay the conduit pipe in and plaster over it; between the floor and the ceiling the conduit was to be laid in a notch cut in the joists, this will require pulling up the floors in order to lay the conduit. This is a very expensive method; but it makes a much better looking installation than exposed conduit anchored to the walls by expansion bolts.

It was finally decided to spend the $2,000 in wiring the main building in exposed conduit, the wiring lay-out was made for same on white print and forwarded to the Department of Public Works, with a list of the material, for their approval.

The estimated cost of this material was $2,075.00 The specifications and wiring scheme for this building was approved by E. R. Rogers, Inspector of Asylums, on October 23rd, 1911, and we were asked to obtain tenders on the material.

The specifications, form of tender and instructions to bidders were forwarded to the following on October 24th:—

Northern Electric & Manufacturing Co., Toronto.
The Canadian General Electric Company, Toronto.
The Central Electric and School Supply Co., Toronto.
A. W. John Manville Company, Toronto.
The Raymond Manufacturing Co., Toronto.
The Electrical Fittings Co., Ltd., Toronto.
The John Forman Company, Montreal.
The Eugene Phillips Electrical Company, Montreal.

The tenders received for this material were forwarded to the Department of Public Works on October 31st, without recommendations.

Penetanguishene Asylum.

We received a letter on Aug. 3rd, 1911, from Mr. Edwin R. Rogers, Inspector of Asylums, requesting that one of our engineers examine the plant for the Hospital for the Insane at Penetang, and submit a report showing the requirements at this Institution to enable them to purchase power from the Town.

We advised Mr. Rogers on August 19th that a report giving the estimated cost of changes was being prepared, and called attention to the size of the motor required for the chopper, laundry, carpenter shop, bakery and machine shop. We also advised the installation of a pump which could be connected to the present standpipe, and also of fire hydrants, and additional surface mains for watering the lawns, the present city mains to be used for supplying the drinking water only.

We further recommended new outside lamps for the courts and driveways, the installation of all wiring in iron conduit except that in the doctor's residence, and that the present generator and the switchboard be moved up to the main building power house, and a new panel with throw-over switches installed.

A report was forwarded to the Department of Public Works giving an estimate to cover the cost of electrical apparatus, wiring buildings in iron conduit, lighting

grounds, and motor driven turbine pumps which would be required at the Hospital in September, as follows:—

Item.	*Capital Cost.*
One turbine pump and motor	$1,250 00
Electric Irons	66 00
Service Transformers	425 00
Motors	735 00
Switching Apparatus	1,000 00
Moving Engine and Dynamo	150 00
Lighting Grounds	1,107 00
Wiring Buildings in Iron Conduit	2,500 00
	$7,233 00
Engineering and Contingencies, 10%	723 00
Interest during Construction, 1½%	108 00
Capital Cost	$8,064 00

The estimate for pump covers one 300 Imp. gallon pump for a working pressure of 90 pounds.

The allowance for electric irons covers 1—5 lb. iron, and 2—7 lb. irons.

The estimate for motors covers:—

One 12 h.p. for use at Stables.
One 10 h.p. for use in Laundry.
One 5 h.p. for use in Carpenter Shop.
One 5 h.p. for use in Bakery.
One 5 h.p. for use in Machine Shop.

The estimate for switching covers the remodelling of present lighting panel and the cost of two new panels with necessary oil switches, knife switches, meters, etc.

The estimate for inside wiring in iron conduit covers the material for main building. Some of the old material removed from this building will be used to wire or repair buildings that are at present wired with cleat or knob work.

The laundry wiring should be repaired, new wires run to electric irons in conduit, and new panel box installed. We also suggest placing new service boxes in the hog, cow and horse buildings, and wiring them in iron conduit.

The ground lighting estimate covers painted wooden poles, four foot iron brackets with 50 standard multiple street-hood reflectors and 100 watt tungsten lamps.

MUNICIPAL RATES.

As stated in the last report, several meetings were called and attended by representatives of the various municipalities for the purpose of discussing, and eventually standardizing, the rates for which energy was to be sold. The recommendations of the Committee appointed to investigate this subject are given in the Minutes of the Municipal Engineers' Meeting appearing in another part of this report. A member of the Engineering Department was appointed secretary of this Committee, and a standard system of rates was adopted by the majority of the municipalities.

The schedule employed for light and power in the various municipalities is given on the following pages. It will be noted that a local discount is included so that these base rates may be made applicable to all of the municipalities, regardless of their power costs, by varying the local discount. The municipalities using this schedule are given in the following list, with the local discount which each have adopted:—

Municipality.	Discount from Base Rates.	Residence Lighting.		Commercial Lighting.		
		Per C. Sq. ft.	Per Kw-hr.	1st hr. per Kw-hr.	Per Kw-hr. additional.	
		cents	cents	cents	cents	
Hamilton	25	4	3½	10	3½	
Dundas	33 1-3	4	3½	10	3½	Commercial flat rate, $6.00 per kw. month.
Hespeler	None.	5	5	14	5	Flat Commercial rate, $7.00 per kw. month.
		10 plus 15c. meter rate.				
Preston	10	4	4½	12	4½	Commercial flat rate, $6.00 per kw. month.
Galt	10	4	4½	12	4½	
Berlin	10	3.5	3.6	12	5	Commercial flat rate, $6.00 per kw. month.
		(Minimum bill per month, $1.00).				
Waterloo	None.	.....	.....	.....	.....	
New Hamburg	None.	.....	.....	.....	.....	
Stratford	None.	4	4½	12	4½	Commercial flat rate, $6.00 per month.
St. Mary's	None.	.....	.....	.....	.....	
London	10	.....	5	.....	5	
St. Thomas	None.	3	5	12	5	Commercial flat rate, $6.00 per kw. month.
Ingersoll	None.	.....	10	.....	10	Sign lighting, 6c. kw.-hr.; heating, 5c. kw.-hr.
Woodstock	10	3	4½	12	4½	Commercial flat rate, $6.00 per kw. month.

After these schedules had been adopted and placed in service by the different municipalities a discussion arose relative to the form of the schedule and a number of changes were suggested, especially in the power schedule. The Toronto Hydro-Electric Commission suggested a different form of service and consumption charge. This was approved and variations of it have been adopted by other municipalities. The latter schedule is as follows:—

Municipality.	Flat Rate Power.		Differential Rate Power.					Residence Lighting.		Commercial Lighting.	
	1st 10 h.p. per h.p.	All additional, per h.p.	1st 10 h.p. per h.p.	All additional, per h.p.	1st 50 hr. per kw-hr.	2nd 50 hr. per kw-hr.	All additional, per kw-hr.	Per 100 square ft.	Per kw-hr.	1st hr. per kw-hr.	All additional, per kw-hr.
					c.	c.	c.	c.	c.	c.	c.
Toronto	.....	.....	1.35	1.00	1½	1	½	4	3	8	3
Brampton	45.00	39.00	1.35	1.00	3	2	1	4	5	12	4
Tillsonburg	50.00	40.00	1.35	1.00	3	2	1	4	5	12	5
Midland	40.20	32.64	1.35	1.00	2¼	1½	¾	4	4	12	4
Penetang	40.20	32.64	1.35	1.00	2¼	1½	¾	4	4	12	4
Seaforth	56.00	46.75	1.35	1.00	4	2½	1½	4	6	12	6
Weston	.....	.....	1.35	1.00	2¼	1½	¾	4	4	12	4
Mimico	51.00	39.00	1.35	1.00	3	2	1	4	4½	12	4½
Waterdown	51.00	39.00	1.35	1.00	3	2	1	4	4½	12	4½
Port Arthur	42.00	30.00	1.35	1.00	2	1¼	¾	4	3½	8	3½

No.....

APPLICATION FOR ELECTRIC LIGHTING SERVICE.

To the Municipality of Dundas, Ont.:

.....191....

Subject to the conditions and rates printed on the back of this application, the undersigned, hereinafter called the Consumer, requests the Corporation of the Municipality of Dundas, hereinafter called the Corporation, to make the necessary service connections and furnish electrical energy at the premises, No.....within the Municipality, owned by..... and occupied by the Consumer, as a..... for.....lamps, or their equivalent.

The Consumer agrees to take from the Corporation all the electrical energy required by him for lighting purposes for the term of .....years, commencing ..... and to pay monthly for said electrical energy in accordance with the base rates of the Corporation as printed on the back hereof, subject to a local discount of not less than .....per cent., under Class.....under which the Consumer's service is to be rated, and subject to a further cash discount of 10 per cent., provided Consumer makes payment of account at the Corporation's office within ten days from date of the bill.

The Consumer agrees to pay a minimum amount of.....dollars per month. The Corporation agrees to renew only exhausted standard plain incandescent carbon filament lamps with Edison base of 8, 16 and 32 c.p. free of cost to consumer, provided same were originally purchased from the Corporation.

Signed.....
Consumer.

.....
Contract Agent.

Consumer's Business Address.....

Approved and Accepted for the Corporation.

.....

Date.....

BASE RATES FOR LIGHTING.

CLASS 1
Residence Lighting:—
Fixed charge per 100 square feet of area lighted, 4 cents per month.
Additional charge per K. W. H. as metered, 3½ cents.
Note re Measurements:—
To determine the area lighted, the maximum outside dimensions of the building are to be taken, and the product multiplied by number of residence floors, and the total amount reduced by 10 per cent. for walls, etc. Basement and attic not to be included, unless in whole, or in part, used as living or sleeping rooms.
CLASS 2
Commercial Lighting:—
(a) Stores and Theatres:—10 cents per K. W. H. for first hour's daily use of installed capacity, and 3½ cents for each K. W. H. above.
(b) Signs and Display Lighting:—Same, or flat rate option.
(c) Churches:—One-half above rates.
(d) Factories:—Same, if they are not using power. If they are, the transformer capacity required for connected lighting load may be added to the motor load, and charged at power rates.
(e) Hotels:—Same as stores. Peak load may be controlled.
CLASS 3
Flat Rates:—
For sign, window, and display lighting, $6.00 per month per K. W. connected.
A 16 Candle Power Carbon Lamp equals, approximately, 55 Watts; 1,000 Watts equals one Kilo Watt.

TITLE AND FYLING DATA

No..... Form.....

LIGHTING CONTRACT

BETWEEN

THE MUNICIPAL CORPORATION OF DUNDAS, ONTARIO,

AND

Name .....

Address .....

.....

Succeeding .....

.....

OWNER OF PREMISES.

.....

.....

Work Order No.....

Date Connected .....

Date Disconnected.....

No. of Lights.....

Total Connected Wattage.....

Kind of Current .....

Class and Rate of Service.....

Contract Noted by.....

" " .....

" " .....

Remarks:

CONDITIONS.

1. The Consumer agrees to provide convenient and safe space for the Corporation's meters (for which no rental charges will be made), wires and all other appliances in said premises, and further agrees that no one who is not an agent of the Corporation or otherwise lawfully entitled to do so, shall be permitted to remove, inspect or tamper with the same, and that the properly authorized agents of the Corporation shall, at all reasonable hours, have free access to the said premises for the purpose of reading, examining, repairing or removing its said meters, wires and other material and appliances.

2. Meters and all other appliances of the Corporation in said premises shall be in the care and in the risk of the Consumer, and if destroyed or damaged by fire, or any cause whatsoever other than ordinary wear and tear, the Consumer shall pay to the Corporation the value of such meters and appliances, or the cost of repairing or replacing the same.

3. The Consumer hereby expressly authorizes and empowers the Corporation at its option to remove the meters and all other material and appliances installed at its expense and cut off the supply of electricity and terminate this agreement whenever any bills for said service are in arrears or upon violation by the Consumer of any of the terms and conditions of this agreement.

4. The Corporation agrees to use reasonable diligence in providing a regular and uninterrupted supply of electricity, but does not guarantee a constant supply of electricity, and will not be liable in damages to the Consumer for failure to supply electricity to said premises.

5. This agreement shall not be binding upon the Corporation until accepted by it through its proper officer and shall not be modified, or affected by any promise, agreement or representation by any agent or employee of the Corporation unless incorporated in writing into this agreement before such acceptance.

6. The Consumer agrees that on request of Corporation he will deposit with the Corporation the sum of..... dollars, to be held by Corporation as a guarantee that Consumer will fulfil all the terms of this agreement.

7. The Consumer will provide all lines on the premises and all lines connecting premises with the point of delivery, and maintain the same in efficient condition with proper devices, the whole according to the requirements of the Canadian Fire Underwriters' Association.

8. This agreement shall continue in force after the term herein mentioned from year to year until terminated by a notice in writing, given by either party hereto at least one month before the end of the term or any yearly term thereafter.

9. It is agreed that the signatures of the parties hereto shall be binding upon their successors or assigns and that the vacating of the premises herein named shall not release the Consumer from this agreement, except at the option and by written consent of the Corporation.

No.....

APPLICATION FOR ELECTRIC POWER SERVICE

To the Light and Water Commissioners for the Town of Preston, Ontario:

.....191....

Subject to the conditions and rates printed on the back of this application, the undersigned, hereinafter called the Consumer, requests the Light and Water Commissioners to make the necessary service connections and furnish electrical energy at the premises No..... within the Municipality, owned by.....and occupied by..... the Consumer as a.....to operate .....motors of.....total horse-power capacity.

The Consumer agrees to take from the Commissioners all the electrical energy required by him for power purposes for the term of .....commencing.....and to pay monthly for the said electrical energy in accordance with the Rates of the Commissioners, as printed on the back hereof under Class..... .....

under which the Consumer's service is to be rated, subject to a local discount of 10 per cent., and to a further discount of 10 per cent., provided Consumer makes payment of account at the Commissioner's Office within 10 days from the date of the bill.

The Consumer agrees, however, to pay a minimum amount of.....Dollars per month.

The Consumer agrees to supply and maintain the following:

.....

.....

SIGNED,.....
CONSUMER.

.....
CONTRACT AGENT.

Approved and Accepted for the Commissioners.

By.....

Date,.....

YEARLY BASE RATES FOR POWER.

The base rates and discounts below have been agreed to by the Municipalities taking power from the Hydro-Electric Power Commission.

H.P. of MOTORS or PEAK LOAD...	1 to 3	4 to 10	11 to 25	26 to 50	51 to 100	101 up
FLAT RATES per H.P. per year.....						
Based on installed H.P.	$20	$18	$15	$13	$11	$10
or maximum demand						
DIFFERENTIAL RATES.						
Fixed charge per installed H.P. per year or maximum demand..	$15	$14.40	$13.80	$13.20	$12.60	$12.00
Meter rate per K. W. H of consumption	3.5c.	3.0c.	2.5c.	2.0c.	1.5c.	1.25c.

CLASS "A"—24 hours' unrestricted use—100 per cent. of the base rate.

" "B"—24 " restricted	" — 90 "	"	"	"	"
" "C"—10 " unrestricted	" — 50 "	"	"	"	"
" "D"—10 " restricted	" — 66⅔ "	"	"	"	"

RESTRICTED HOURS:

Oct. 15th—Oct. 31st	5.30 p.m.	to	6.30 p.m.
Nov. 1st —Nov. 30th	5.00 p.m.	to	6.30 p.m.
Dec. 1st —Jan. 15th	4.30 p.m.	to	6.30 p.m.
Jan. 16th—Feb. 15th	5.00 p.m.	to	6.30 p.m.
Feb. 16th—Mar. 1st	5.30 p.m.	to	6.30 p.m.

LOCAL DISCOUNT.—A Discount from these rates will be given by the Municipality of not less than 10 per cent.

PROMPT PAYMENT DISCOUNT.—A further discount of 10 per cent. on the whole bill will be allowed for payment within 10 days from date of bill.

If Consumer uses power in any higher class than that under which he is rated, he shall from that time be considered as automatically transferred to the new class for balance of the term of contract.

If found necessary to consider power factor, the Hydro-Electric Power Commission reserves the right to adjust the rates to cover, except as per No. 11 condition.

Form 1. (250-3-10).

TITLE AND FYLING DATA

No..... Form.....

POWER CONTRACT

BETWEEN

The Light & Water Commissioners for the Town of Preston,

Preston, Ontario,

AND

Name .....

Address .....

.....

.....

Succeeding.....

OWNER OF PREMISES.

.....

.....

Work Order No. .....

Date Connected .....

Date Disconnected.....

No. of Motors .....

Total Rated Horse Power.....

Horse Power Contracted for.....

Minimum Bill.....

Class and Rate of Service .....

Contract noted by .....

Chief Agent.

.....

Cashier.

" " .....

" " .....

Remarks:

Record Clerk.

CONDITIONS.

1.—The Consumer agrees to provide convenient and safe space for the Commissioners' meters (for which no rental charges will be made), wires and all other appliances in said premises, and further agrees that no one who is not an agent to remove, inspect or tamper with the same, and that the properly authorized agents of the Commissioners shall, at all reasonable hours, have free access to the said premises for the purpose of reading, examining, repairing or removing their said meters, wires and other material and appliances.

2.—Meters and all other appliances of the Commissioners in said premises shall be in the care and in the risk of the Consumer, and if destroyed or damaged by fire, or any cause whatsoever, other than ordinary wear and tear, the Consumer shall pay to the Commissioners the value of such meters and appliances, or the cost of repairing or replacing the same.

3.—The Consumer hereby expressly authorizes and empowers the Commissioners at their option to remove the meters and all other material and appliances installed at their expense and cut off the supply of electricity and terminate this agreement whenever any bills for said service are in arrears or upon violation by the Consumer of any of the terms and conditions of this agreement.

4.—The Commissioners agree to use reasonable diligence in providing a regular and uninterrupted supply of electricity, but do not guarantee a constant supply of electricity, and will not be liable for damages to the Consumer for failure to supply electricity to said premises.

5.—This agreement shall not be binding upon the Commissioners until accepted by them through their proper officer, and shall not be modified or affected by any promise, agreement or representation by any agent or employee of the Commissioners unless incorporated in writing into this agreement before such acceptance.

6.—The Consumer agrees that, upon request of Commissioners, he will deposit with the Commissioners the sum of.....dollars, to be held by Commissioners as a guarantee that Consumer will fulfil all the terms of this agreement.

7.—The Consumer will provide all lines on the premises and all lines connecting premises with the point of delivery, and maintain the same in efficient condition with proper devices, the whole according to the requirements of the Canadian Fire Underwriters' Association.

8.—This agreement shall continue in force after the term herein mentioned from year to year until terminated by a notice in writing, given by either party hereto at least one month before the end of the term or any yearly term thereafter.

9.—It is agreed that the signatures of the parties hereto shall be binding upon their successors or assigns, and that the vacating of the premises herein named shall not release the Consumer from this agreement, except at the option and by written consent of the Commissioners.

10.—If required to fix the basis of billing, the Consumer hereby authorizes the Commissioners to install and repair maximum demand or curve drawing meters, other measuring devices at Consumer's expense, or to make tests from time to time to determine the maximum amount of power used. The Consumer agrees not to make any changes in or additions to his apparatus or connected load after the same has been so determined, except with the written consent of the Commissioners.

11.—All electrical and mechanical equipment used by the Consumer shall be subject to the reasonable approval of the Commissioners, and the Consumer shall so take and use the electrical energy as not to endanger the apparatus of the Commissioners or cause any wide or abnormal fluctuations of their line voltage. All motors shall be selected with reference to securing the highest feasible power factor at all loads. Minimum power factor when operating Consumer's maximum load shall be 80 per cent. for motors up to 10 H.P. and 85 per cent. above 10 H.P.

Continuing our investigation of rates, letters were sent to all of the large Hydro-Electric Generation and Distribution Companies of the Dominion and the United States asking for their lighting and power schedules, and on receipt of these a report was made up from which we shall quote as follows:—

"In reply to our circular letter, dated September 27th last, which was sent to various municipalities and electric supply companies throughout Canada and the United States, forty-four letters have been received. Seven of these state that for some reason or other, the information asked for cannot be given, two state that it will be forwarded in a few days (in neither case has the information been received at this office up to date) while the remaining thirty-five give in more or less detail, the system of charging in vogue.

"Owing to the extremely diverse nature of these systems, to classify them under every possible heading would be a very laborious and somewhat unprofitable task. The main points only are therefore considered in this report and the following classification appears to be the most useful:—

"The first division is, naturally, charges for lighting and those for power. For each of these the following systems are employed:—

1. Flat Rates—fixed or varying with quantity.

2. Meter Rates—fixed or varying with quantity.

Meter Rates are sub-divided into—

1. Simple Rates, that is, a fixed charge per kw-hr. only, with or without either or both of the following:—

(*a*) Minimum charge, fixed or varying.

(*b*) Discounts, fixed or varying.

2. Compound Rates, that is, a fixed or variable charge per kw-hr. with or without any or all of the following:—

(*a*) Minimum charge, fixed or varying.

(*b*) Discounts, fixed or varying.

(*c*) Service charge, fixed or varying.

Prompt payment discounts and meter rentals are not considered here as these do not affect the question of rates.

Attached to this report is a detailed statement of the various systems of charging used by each of the undertakings in question and a tabular statement giving the numbers of those whose systems come under the different heads. The numbers in brackets are totals, while the others refer to those given opposite the individual undertakings in the detailed statement. Another sheet gives the outstanding features of the tabular statement in the form of diagram.

A study of the foregoing shows that:—

A. Lighting.

(*a*) Meter rates are more than twice as popular as flat rates, and the latter are, generally speaking, used only for small consumers.

(*b*) Compound meter rates are slightly more numerous than simple meter rates.

(*c*) Service charges and sliding discounts, while equal to each other, are far outnumbered by minimum charges.

B. Power.

(*d*) Same as "a" above.

(*e*) Compound meter rates are used by all the undertakings which have meter rates for power, but simple meter rates only by three of them.

(*f*) Minimum charges are more in evidence than service charges.

(*g*) Sliding discounts are employed only in two instances.

(*h*) Restricted-hour service is provided by five different concerns and restricted-season service by only two.

C. Lighting and Power.

In one instance flat rates for lighting are being discarded, and in another case they have been adopted for power in preference to meter rates.

Some of the undertakings are small and have no rates for power, while others are large and have no rates for lighting.

Some differentiate their charges for sign lighting, heating and cooking, etc., and others do not.

One gives less discount in summer than in winter.

Looking over these different rates and judging from the character of the companies using the rates, we believe that the companies as a whole are working toward a system of charge consisting of a monthly service charge plus a charge per unit of consumption. We also received confidential letters from some of the companies, acknowledging that the rates in use were not acceptable to their engineers, but, through local commercial conditions, were compulsory on them and that they hoped to modify them. Confirming this belief of ours we would point to the reports of the various Electrical Associations who have made investigations and reports on the same subject. We would especially refer to the report of the National Electric Light Association for the year 1911. All these facts emphasize our belief in the justice of the combined rate which we are trying to place in an acceptable form."

MUNICIPAL PURCHASES.

An important branch of the work done by the Commission is the purchase of material and apparatus for the maintenance and operation of transmission and distributing lines and sub-stations, the equipment for extensions, and the apparatus and material required by Municipal Electrical Departments of the Province and many of the Provincial Institutions.

The system and the municipalities require yearly, material and apparatus in considerable quantity and great variety. The detailed work involved in the execution of orders necessitates a complex routine which can be more readily attended to by a special staff, and with the rapid growth of the system it was considered advisable during the close of 1910 to organize a Purchasing Department. One section of this Department attends to the requirements of the transmission system, while another section devotes its entire time to the execution of orders for the Municipalities. It has been the endeavor of the Department to act as a general buying agent, and by considering the total requirements of the system and the municipalities obtain costs much lower than those obtainable by independent purchases of smaller quantities. Being centrally located the Purchasing Department can obtain information quickly, and through the facilities at its command can criticise quotations and the various supplies and apparatus; it is thus in a better position to make recommendations upon quality and price than an independent purchaser in a locality more remote from a large buying centre. Also, being in close touch with the various manufacturers the Purchasing Department can give careful attention to the execution of the orders and see that shipments are made as promised.

There are now twenty-five Municipal Electrical Departments purchasing through the Commission, and with the increased quantities which may be expected with the extension of this central buying idea the department will be in a position to obtain still better prices, and by entering into contracts it will be possible to improve shipments. Among the important services already rendered to the Municipalities may be mentioned the saving effected in the building of their "distribution" lines. The extent and value of the more important items purchased through the Commission during 1911 are indicated in the summary included at the end of this report. The quantities shown will serve to emphasize the importance of buying for the system as a whole, in large quantities, at considerably reduced prices.

The advantages of co-operation of this kind are specially marked in the case of Incandescent Lamps. Information already at hand shows that by contracting for yearly requirements in large quantities a saving in some cases of 25 per cent. can be effected. Comparative tests designed to show the merits of the various domestic and foreign carbon and tungsten lamps are now being conducted, and upon their conclusion specifications will be prepared and the Commission will be in a position to obtain for municipalities reliable lamps of a definite standard of quality and price.

Similar tests are also being carried out with the various domestic and foreign Wattmeters of the Lighting Service Type, and upon the conclusion of these tests specifications will be prepared and these Wattmeters will be standardized.

At the present time, there exists in the Province a general lack of electrical standards. This condition has been appreciated by the Commission's Engineers, who have prepared a number of specifications which are available for those re-

quiring such standards, and in due course complete specifications will be available for all of the various apparatus and supplies which can be standardized.

The general work of the Commission's Engineering and Purchasing Staffs has covered a field ranging from the purchase and installation of the largest electrical and hydraulic apparatus required for the equipment of the power and lighting plants in the various sub-stations and municipalities down to the minor supply items. With all the facilities of a complete organization at its command the Commission is in a position to give expert engineering advice, and takes this opportunity of offering the services of its Engineering and Purchasing Staffs to any of the Municipal Electrical enterprises in the Province.

A summary of the more important purchases made by the municipalities through the Commission during the year 1911, is approximately, as follows; a sum total of each of the various segregated classes of apparatus being made:—

Line material, Cross Arms, Braces, etc.	Poles of various sizes.		Motor driven Apparatus and Motors.	Incandescent Lamps.	Wattmeters.		Transformers.		Panels and Switch Gear.	General Supplies, etc.
	Number.	Cost.			Number.	Cost.	Total kw.	Cost.		
$61,757	1,723	$4,744	43 h.p., $770	$23,164	463	$5,101	2,443	$24,790	$16,979	$32,112
.....	.....	.....	$7,319	.....	.....	$10,440	.....	$47,966	.....	.....

Grand total, $235,142.

MUNICIPAL ENGINEERS' MEETINGS.

Fourth Meeting.

The Fourth Meeting of the Municipal Engineers was held in Toronto on November 16th and 17th, 1909, and called to order with the following Municipalities represented:—London, Preston, Berlin, Woodstock, St. Mary's, Waterloo, St. Thomas, Guelph, Hespeler, Toronto, Galt, Stratford.

Street Lighting.

The following Report was submitted by the Committee on Street Lighting:—

"Your Committee have visited a number of typical street lighting installations in the States of Massachusetts and Ohio and our observations and conclusions may be briefly summed up as follows:—

In the arc lighting field the so-called magnetite or Metallic Flame arc lamps are rapidly superseding the enclosed and other forms of arc lighting. The standard lamps of these types are of 4 amperes capacity and are operated from A.C. circuits of any frequency by means of C.C. transformers and Mercury arc rectifiers. The distribution of light from this lamp is ideal for street lighting, giving as it does its maximum candle power at about 10° below the horizontal. The tube life is showing marked improvement over early records and may be safely estimated on as from 1,000 to 1,200 hours, individual large installations being found having tube life averaging over 1,600 hours.

The maintenance cost of this system is found to work out as follows:—

Electrodes	20 to 22 trims	$1.50 to	$1.65
Tubes	50 light circuit	1.90 to	2.40
Labor		1.30 to	2.50
Glassware		.50 to	.75
		$5.40	$7.30

Well constructed and insulated circuits are found to be conducive to length of tube life.

In Toledo, with 2,400 lamps, records of outages only show 2/10 of one per cent.

These lamps give good results even when spaced as far apart as 300 to 400 feet.

In Boston they are using a 6.6 ampere magnetite which is about 2⅓ times as powerful as the regular 4 amper lamp. This is a very powerful lamp, but the hours of buring are only about 70 to 80 hours. As yet nothing is known concerning the 6.6 ampere rectifier tube.

Flame lamps are also used with good effect for square lighting, etc., but their high trimming costs make them very expensive.

Low operating costs combined with relatively high efficiency make the 4 ampere luminous arc lamp the favorite for all open streets where relatively high illumination is desired.

We found series tungsten street lighting very prevalent in the smaller cities and towns of New England. They are, in the great majority of cases, operated from C.C. Transformers. A lamp life including accidental and malicious breakage of from 2,000 to 2,500 hours is reported in all cases. The fire-enamelled radial wave reflector is being widely used because of its durability and high efficiency. It is the general opinion that the long life of the series tungsten is partially attributable to the good regulation of the C.C. Transformers.

In certain cases where underground distribution was required, we found multiple tungstens being used with good results and reported long burning life. The low voltage multiple system seeming to lend itself to low installation costs. 250 watt tungsten lamps in multiple in opaque balls on ornamental iron posts are used in a business street of a New England City with good effect.

Your Committee would recommend the use of the 4 ampere luminous arc lamps for cases of open or business streets where a medium to high illumination is desired, and the series tungsten system for residential and heavily treed districts where a lower average illumination is desired."

General discussion followed and recommendations were made by the street lighting experts from the Westinghouse and General Electric Company.

13,200 Volt Insulators.

The standard insulator formally chosen, known as Type No. 10,044, has been tested and found too small for the voltage while the new type No. 2041 was found superior under test. At the recommendation of the Engineering Department the latter type accepted as a standard was approved and the Commission was asked to secure data and prices on the longer pin.

Municipal Control of House Wiring.

The resolution passed at the previous meeting relative to house wiring had been referred and approved by the Commission. It was suggested that a draft of the by-laws, which were to be prepared by the Engineering Department, be sent to the various engineers for consideration and suggestions.

Prices on Cross Arms.

The Engineering Department submitted prices on long leaf yellow pine and native wood cross-arms.

Transformer Specifications.

The Committee appointed to prepare standard step-down Transformer Specifications, submitted a progress report.

Regulation.

Since the transformers in all stations must be interchangeable it is necessary that the regulation as secured be uniform for any given sizes, even though the transformers be manufactured by different concerns. Moreover the regulation should be the same for all transformers at varying power factor.

It was found impossible to designate any limits for this regulation and it was, therefore, decided to write the various manufacturers to ascertain the minimum limit and also the variation that might be expected in the regulation of transformers of similar design commonly manufactured. After discussion, it was agreed that both the resistance method and thermometer should be used in the measurements of temperatures and, with shell type transformers, since hot spots are likely to develop within the core which neither method can discover, it is recommended that design drawings be carefully examined to ascertain whether or not cooling oil can circulate freely to all parts.

Potential and Insulation Tests.

It was considered advisable to subject all transformers to the following tests to determine insulation characteristics:—

1. Measurement of insulation resistance, cold.

2. A second measurement of insulation resistance at the termination of the temperature test.

3. High voltage test 2½ times normal applied for one minute between windings of core and case.

4. Operation at double voltage for a period of five minutes.

5. Final measurement of insulation resistance while the transformer is still hot.

This latter measurement should be a relative indication as to whether or not the transformer has been damaged in any way through the high potential tests.

Other points were discussed among which the following are the most important:—

Manufacturers to state kind of oil to be used, and characteristics of the same. Oil must not become deposited and clog the circulating ducts.

Thermometers are advisable for all station and railway transformers, but the design must be such that breakage of thermometers will not permit the oil to leak from the case.

Coils to be thoroughly braced to withstand short circuits.

A specification to be prepared to include single-phase and three-phase types, also water cooled, self cooled and air cooled styles under both types, the object being to cover as many designs of different manufacturers as possible. In this connection comes the question of standard ratings, and it is advisable that a few given sizes be chosen for single-phase types together with equivalent three-phase sizes which the manufacturers shall agree to furnish as standard and in such quantities as may be required.

Considerable discussion ensued and it was finally decided that the oil known as "Mineral Seal" was to be specified; and a test for dryness should be inserted, and that thermometers "are advisable for all station and sub-way transformers."

Comparison—Single and Three Phase Transformers.

The Engineering Department of the Commission submitted comparative prices, weights and sizes for single and three-phase transformers. The data are as follows:—the figures being merely comparative and approximate.

		Prices.		Weight.		Dimensions.	
3	10 kw. sgl. ph., ..	$750	$825	3,090	4,200	29 by 21¼ by 35	38 by 24 by 59
1	30 " 3 " ..	700	610	4,320	4,200	54 " 27½ " 70	47 " .. " 70
3	25 " sgl. " ..	1,095	1,380	6,384	6,600	37½ " 23 " 41	45 " 37 " 78
1	75 " 3 " ..	950	1,015	4,700	6,650	54 " 27½ " 70	55 " .. " 66
3	50 " sgl. " ..	1,950	2,100	7,350	7,890	34½ " 24 " 63	39 " 30 " 48
1	150 " 3 " ..	1,550	1,540	10,000	6,975	57½ " 29½ " 76	65 " .. " 72
3	100 " sgl. " ..	2,250	3,555	18,000	14,490	46 " 31 " 82	49 " 38 " 55
1	300 " 3 " ..	1,800	2,610	16,000	12,600	80½ " 40 "101	65 " .. " 96
3	200 " sgl. " ..	3,675	5,100	21,690	21,900	53 " 35 " 91	60 " 46 " 60
1	600 " 3 " ..	3,000	3,740	20,900	19,820	87½ " 44 "127	79 " .. "120

Note.—Prices and data were received from several companies and the high and low are given in each case in the table above.

Rates for Incandescent Lighting.

The subject of the rates which should be charged for incandescent lighting was discussed at length. The comparative costs for house lighting for various consumers in Berlin was presented, and showed that the method proposed at a previous meeting was fair and equitable, and that it reduced the monthly bill of a person who required considerable light in proportion to the size of his house, affects slightly the average user, and increases the monthly bill of those persons employing little light in relation to the size of their houses. Such being the case the rate per foot of floor area and the rate per kw-hr. can be modified to suit the requirements of any municipality.

Data were also presented showing the effect of the method of charging, proposed by the City of Toronto, on the monthly and annual bill of various classes of customers. It was found that this plan did not tend to increase and popularize the use of electricity in residences.

Various changes were suggested and the following resolutions finally adopted:—

"Resolved that the concensus of opinion is that the method of charge for house lighting shall be a differential rate consisting of a charge a square (100 square feet) of the floor area of the building figured from the outside dimensions, not including cellars and attics, except when used for living rooms, as a fixed monthly charge, and in addition thereto a fixed meter rate as low as the local conditions shall warrant."

"Resolved that it be the recommendation of this meeting that a 10 per cent. discount for prompt payment be used when determining the monthly bill and the discount be allowed on the total bill, on the fixed charge as well as on the charge per kw-hr."

Energy Rates.

This subject having been generally discussed it was resolved that the considerations and decisions in the matter should be pushed, and in order to accomplish this, a Committee was appointed to make a report and mail a copy to each engineer for consideration before the next meeting.

Fifth Meeting.

The Fifth Meeting of the Municipal Engineers was held in London on December 14th and 15th, 1909, and called to order with the following municipalities represented:—London, Berlin, Woodstock, Waterloo, St. Thomas, Guelph, Stratford, Galt.

The following report was submitted to the Committee on energy rates:—

Report of the Committee on Energy Rates.

"We assumed at first that the case under consideration was that of a city where power from the power circuits must be sold at $50 to cover power costs plus costs of distribution, labor, administration, etc., in fact all the costs properly chargeable to this service. This figure was assumed as it would show more clearly the proportions between the various kinds of service, and all other proposed prices are figured on the same basis.

We concluded that the proportions between the costs of the various kinds of service could be fixed for all municipalities and these proportions are as follows:—

Flat Rate.

Give a flat rate of $50.00 a h.p. a year on a consumer's total motor rating with unlimited hours of service, the total motor rating being the sum of the full load capacity of all motors used. Or giving a corresponding rate of $45.00 for 10 hour power (the common use of power from 7 a.m. to 12 noon and 1 to 6 p.m.) or giving a corresponding rate of $33.50 for restricted hour service, (these hours being made to correspond with sun-time in each municipality).

The proportions between the prices were determined as 100 per cent. for the first-class, 90 per cent. for the second, and 66 2-3 for the restricted service.

Any customer who will furnish and maintain a satisfactory curve-drawing meter can secure these same rates paying on the monthly maximum demand, using the momentary maximum shown on the curve (where obviously not a short circuit) as the power to be paid for. The monthly bill shall never be less than the maximum previously recorded unless some change is made which reduces the number or capacity of the motors in service, a written notice of such a change with a request for a new limit being filed previous to the beginning of the month when such a reduction in capacity will be allowed. (If the maximum monthly bill of say 75 per cent. of the previously recorded maximum should be used, it would necessitate increasing the rates over the flat rate per h.p. connected up in order to make the plan equitable.)

Differential Rates.

A consumer having a load factor too low to warrant the flat rate method of charge shall be given the Differential Method of charge, the rates being the following:—

Total h.p. in motors in service.	Monthly fixed charge per h.p. of motors in service.	Rate per kw. used per month, read by meter.
1–3	$1.50	4c.
Above 3 and including 6	1.45	3¾c.
" 6 " " 15	1.40	3½c.
" 15 " " 30	1.35	3c.
" 30 " " 55	1.30	2½c.
" 55 " " 100	1.25	2c.
"100	1.20	1½c.

These prices are based on the $50.00 a h.p. on motor rating basis, and are subject to the same proportionate reduction as is made in this rate per h.p. to adapt it to the conditions in each municipality. That is if a town sells 24 hour power at $35.00 (70 per cent. of $55.00) the fixed charge under this method, of a consumer with 50 h.p. in service, would be 91c. a h.p. a month and a rate of 1¾c. a kw-hr.

Discount.

After all rates are determined, they should be increased by one-ninth to allow for 10 per cent. discount for prompt payment."

There was a general and prolonged discussion on the suggestions of the Committee, during which it was carefully explained that the prices suggested were not to be adopted by each municipality as prices, but instead were used to show the proposed ratios between the various types of service, and if the price of 24 hour flat-rate power at $50.00 is reduced in any municipality by (as an example) 25 per cent. all the other prices would be reduced in the same proportion. The Committee would not determine general rates for all the municipalities, but the method of making rates by the various municipalities could be investigated and recommendations made.

Report of Transformer Committee.

This report recommended that no close standard should be adopted, since it would tend to restrict developments and improvements: that each municipality secure transformers best suited for their use, bearing in mind the previous recommendations of the Engineering Meetings regarding voltage, taps, etc.

Report of Committee of Municipal Auditors.

The Chairman of this Committee reported that progress had been delayed by difficulties encountered in financing their expenses.

The following motion was moved, seconded, and carried:—

"Whereas it was necessary for the Hydro-Electric Power Commission in settling rates and disputes to have a uniform system of accounting, be it resolved that such a system should be devised, and that it be the opinion of this meeting that the Commission assume the burden of devising such a system eith by using the system planned by this Commission or by formulating a system independently: and further be it resolved that a request for prompt action be made, as the construction accounts covering the present municipal work should be sub-divided in accordance with the system adopted."

Report of the Committee on Power Rates.

This report recommends the revision of previous suggestions somewhat as follows:—

It was decided that the small users of power should not be given the same rate per h.p. under the Flat Rate method of charge as can be given the large users, since the cost of serving the small user is greater in proportion than the cost of serving the large users. Therefore, the flat rate per h.p. has been modified.

Amount of Energy Taken in H.P.	Cost per H.P. per Year.
1–3	$50.00
Above 3 and including 10	48.00
" 10 " " 25	45.00
" 25 " " 50	43.00
" 50 " " 100	41.00
" 100	40.00

The 20 hour power users (those who use power all 24 hours, except during the lighting load, 12 months during the year) will be given a rate equal to 90 per cent. of the above.

The 10 hour power users (those who use power up to and during the lighting peak) will be given a rate equal to 90 per cent. of the above.

The 10 hour restricted-service power users (those who use power only up to the beginning of the lighting peak) will be given a rate equal to 66 2-3 per cent. of the above.

The Differential Rates have been devised so that the rates will change at the same point as the rates under the flat rate system: they have been changed so that the meter rate is a charge a h.p. instead of kw-hr., they have been increased so as to be subject to the same discounts (90 per cent. and 66 2-3 per cent.) on the flat rates for the various classes of service: and they have been modified so that a consumer with a load factor of 50 per cent., working 3,000 hours a year, would have practically the same bill under either method of charge. The suggested proportions are as follows:—

Amount of H.P. Connected Up.	Monthly Charge a H.P.	Meter Rate a H.P.
		c.
1 to 3	$1.25	3½
Above 3 " 10	1.20	3
" 10 " 25	1.15	2½
" 25 " 50	1.10	2
" 50 "100	1.05	1½
" 100	1.00	1¼

This report was accepted provisionally to be considered and thought over by all until next meeting, when it will be brought up for final discussion.

Transformers with 2,200 Volt Low Tension Windings.

Recommendations were made and approved that transformers with 2,200 volt low tension winding should have four coil secondaries, so that they may be used for 550 volt circuits if desired.

Committee on Commercial Lighting.

A committee was appointed to prepare a method of charge for commercial lighting.

Sixth Meeting.

The Sixth Meeting of the Municipal Engineers was held in St. Thomas, on January 11th and 12th, 1910, and called to order with the following municipalities represented:—St. Thomas, London, Preston, Guelph, Woodstock, St. Mary's, Waterloo, Berlin.

Power Rates.

The Committee on power rates suggested changes in the plan proposed and accepted provisionally at the previous meeting. These recommendations were approved.

Based on the resolutions as to power rates adopted provisionally at the meeting of December 15th, 1909, and as an extension of the discussion thereof, the following memorandum applies:—

Assumptions.

1st—Assume same base rate as per resolution of December 15th.

2nd—Reduce all rates herein to yearly basis and make all quotations in dollars, instead of by discounts from the base rates.

3rd—All discounts from the base rates are decided by each separate municipality, to suit its needs.

4th—All discounts for cash to be fixed by the united municipalities at say 10 per cent. by way of illustration.

On this basis the following tables and remarks apply:—

In table No. 1, the first line is that of the provisional resolution referred to. The second is that suggested for consideration.

The classes of customers have been divided into five classes, and each class is discussed separately below:—

Class A.

These are purely arbitrary figures used in an endeavour to obtain a basis to work from. As the whole structure depends upon this base being correct, it should be carefully considered whether these rates are sufficient to cover the costs for power for the smallest motor, in the smallest municipality at the greatest distance, say St. Mary's for instance. In other words, to cover the most unfavorable conditions. If this base be changed, the rest of the discussion herein fails and must be changed accordingly.

Class B.

This is obtained from Class "A" as per resolution, by a discount of 10 per cent. Suggested schedule merely rounds up the odd cents into dollars.

No mention has been made of 20 hour power, and the question is whether it would not be advisable to call this 24 hour *restricted* power as it leaves a wider scope for arrangements to customers and is on the same lines as the 10 hour restricted power below.

Class C.

The suggested rates merely round up the dollars in the rates suggested by the Resolution and are the same as the 24 hour restricted power, as per that Resolution.

Class D.

The same procedure as above determines the suggested rates, a slight advantage being given in the adjustment to the larger units, and a slight disadvantage given to the first group as compared with the Resolution Rates. It is suggested that this is in the interest of fairness and good policy.

Class E.

In this table the rates per month of the resolution are taken as the basis, and from these the differential rates necessary to equate with the 10 hour unrestricted rate are determined, assuming that a 50 per cent. load factor is the equating point. These meter rates are given in line 3 of the table.

After figuring out several schemes, a suggested flat and meter rate of $12.00 a year and 2c. a kw.-hr. respectively were selected, and in the fifth line the load factors for which these equate with the 10 hour unrestricted rate are given.

It will be noted under this heading:—

1st—That the flat rate is the same for all power, large or small, and should catch all business.

2nd.—Similarly for the suggested meter rate. It will be noted from the load factor that the small user under this rate obtains advantage which the large user does not. This is for the encouragement of the large.

This as submitted is in the interest of the public demand generally and of good business policy on the part of the municipality, as it is not desirable that the large user should be encouraged too much to take the differential rate.

Unrestricted Use.

Under this differential rate it is suggested that unrestricted use be allowed as tending to simplify book-keeping, inspection and detection, and that the rates indicated are high enough to permit of this. Customers using this rate will be small consumers in nearly every case and cannot be checked up as to restricted hours and will be able therefore to have much more satisfactory use without imposing very much on the peak of the load.

Power Factor.

In all of the above rates the question of power factor will enter and must be met in some way. It is suggested in the interests of simplicity that the municipality establish a scale of full load power factors for different classes of motors allowed on the lines, which will ensure the purchase of good machinery by the customer, and then take no account of power factor whatever in billing customer. While it is true in theory that a bad power factor due to small load does impose on the machinery and equipment, yet the difficulties of checking this matter with many customers is a serious one, and as the poor power factor of any customer will only affect the purchase of power by the municipality through the Commission at the peak of the load during the winter time, when the lighting will assist in the general power factor, it becomes questionable whether it is advisable to penalize the customer for poor power factor if their motors are satisfactory. All of this is in the interests of simplicity.

It might be considered advisable on the other hand to reward those who install synchronous motors by a further discount in rates. This is for considera-

tion. This class will form but a small portion and might be considered as specials in dealing with it in the schedule of rates.

With the above suggestions in mind, the attached table No. 2 has been drawn up to illustrate the schedule of rates, which might be printed on the back of the municipal accounts. These rates here indicated are those suggested for each class. It will be noted that spaces for different rates of discount are shown for each class. Consideration should be given to whether the municipality could not, instead of cutting each rate with a separate discount, use an identical discount for all classes, as a matter of fact, Classes C and E must be similarly discounted if their equities are to be maintained.

Power Rates.

Gross Price per Horse Power per Year—Table No. 1.

	1 to 3 h.p.	3 to 10 h.p.	10 to 25 h.p.	25 to 50 h.p.	50 to 100 h.p.	100 h.p. upwards.
	$	$	$	$	$	$
Class A—						
24 hour unrestricted power	50.00	48.00	45.00	43.00	41.00	40.00
Suggested	50.00	48.00	45.00	43.00	41.00	40.00
Class B—						
24 hour restricted power	45.00	43.20	40.50	38.70	36.90	36.00
Suggested	45.00	43.00	41.00	39.00	37.00	36.00
Class C—						
10 hour unrestricted power	45.00	43.20	40.50	38.70	36.90	36.00
Suggested	45.00	43.00	41.00	39.00	37.00	36.00
Class D—						
10 hour restricted power	33.33	32.00	30.00	28.66	27.33	26.66
Suggested	34.00	32.00	30.00	28.00	27.00	26.00
Class E—						
Differential rate						
Flat rate	15.00	14.40	13.80	13.20	12.60	12.00
Suggested flat rate	12.00	12.00	12.00	12.00	12.00	12.00
Meter rate	2.00	1.92	1.78	1.70	1.63	1.60
Suggested meter rate	2	2	2	2	2	2
Load factor to equate	55%	52%	47%	44%	42%	40%

Base Rates for Power—Fixed by All Municipalities—Table No. 2.

Horse Power of Motors Connected.	1 to 3 h.p.	3 to 10 h.p.	10 to 25 h.p.	25 to 50 h.p.	50 to 100 h.p.	100 h.p. upwards
Class A—						
24 hour unrestricted power per horse power per year	$50.00	$48.00	$45.00	$43.00	$41.00	$40.00
Class B—						
24 hour restricted power per horse power per year	45.00	43.00	41.00	39.00	37.00	36.00
Class C—						
10 hour unrestricted power per horse power per year	45.00	43.00	41.00	39.00	37.00	36.00
Class D—						
10 hour restricted power per horse power per year	34.00	32.00	30.00	28.00	27.00	26.00
Class E—						
Differential rate unrestricted as to hours of use						

$12.00 per horse power per year, and 2c. per horse power hour used.

From the above base rates used by all municipalities, the Corporation of the Town of (*Woodstock*) allows the following rates of discount, on total account rendered:—

Class A .....% Class B .....% Class C .....%
Class D .....% Class E .....% If payment be made within ten days of date of account, a further cash discount of 10 per cent. will be allowed.

Alternating Meter Readers.

It was also suggested at this meeting, that in instances where more than one meter reader is employed, a good check on the readings is secured by alternating the route covered by each of the meter readers. This recommendation was adopted.

Date for Meter Readings.

Date of Bills:—

It was further recommended that where the number of meters to be read warranted that meter reading be carried on through all the month, bills be sent out every day due in 10 days after date of bill. This would distribute the work of reading, billing and accounting over the entire month, and facilitate the work of the Department.

Special Class of Power Users.

It was the concensus of opinion that a special rate in accordance with peak and load conditions in each municipality be made for seven or eight months' power users, particularly those who heat by exhaust steam during four or five months of the year.

Length of Contract Adopted.

The minimum period of contract to be one year.

Five Year Contracts.

It was agreed that the minimum period of contract be one year, and that the basis for the price be fixed on the power anticipated to be sold at the end of the second year, and that in a five years' contract a clause be inserted guaranteeing that the rates will not advance more than 10 per cent. as an average during the first five years.

Classes A, B, C and D.

These are generally approved under the heading "Power Rates."

Class E Changes.

It was further agreed that the rates for Class E. should be scaled down in accordance with use and horse power connected up, and that four classes of service, the same as the four classes under flat rate with the corresponding ratios between prices, be established. Also that no restricted rates be given to users of 10 h.p. or less—this to apply to both flat and differential rates.

It was also decided that the differential rates should be given at a charge per kw-hr. instead of h.p. hour.

Suggestion re Power Factor.

It was suggested that a clause be inserted in the power contracts to read as follows:—Where it is necessary to consider power factor, the consumer who has a power factor of less than 75 per cent. may be penalized by the same method as that used in the contract between the Municipality and the H.E.P. Commission.

A letter from the Board of Light and Heat Commissioners of Guelph regarding power rates was referred to the Power Rates Committee for a report.

Report of Commercial Lighting Rates Committee.

A meeting of this Committee was held in London on January 5th, and after considerable discussion it was decided to recommend a double rate for commercial lighting, a certain rate per kw-hr. up to a daily one hour's use of the installed capacity and a low rate for all lighting in excess of this amount.

In explanation of this, we would say that, in making up the monthly bill, the installed capacity of the consumer, multiplied by 30. (i.e. one hour for each day of the month) will be used to determine the consumption to be charged at the high rate, while the low rate will be charged for all power consumed, per month, above this amount.

The proportion between these two rates was decided at 20c. and 5c. The rates themselves would vary in the different municipalities but it was found that at 12c. and 3c., London could easily compete with a rate of 9c. for all lighting. Bills at these small rates would compare very closely with the present bills in Woodstock at 8c. a kw-hr. and 20c. a month meter rent.

The various kinds of commercial lighting are covered as follows:—

Stores—20c. a kw-hr. for first hours daily use of installed capacity, and 5c. for each additional kw-hr.

Theatres—same.

Signs—same.

Display—Same.

Churches—one half above rate.

Factories—same if they are not buying power. If they are, add the transformer capacity to the connected load.

Hotels—same with some reduction due to distribution of load with some method to control the peak load.

The Committee acknowledges that specific instances may be cited which cannot be secured by these rates, but a thorough discussion is invited of the merits or faults of the plan suggested.

Commercial Lighting Rates.

This subject was re-considered with many arguments for and against the proposed rates. In order to secure more data on the subject it was moved and carried that each member investigate conditions in his own town to determine how the suggested method and the one similar to the house-lighting rates, would work out in a number of actual cases.

Price of Power in St. Thomas.

An application having been received by St. Thomas for 450 h.p. from the Michigan Central Railway Company for their shops, a general discussion of the terms of the contract was held and it was found that all of the important clauses of such a contract have been decided except the question of duration of peak load when buying power on a graphic recording meter. This was decided to be one minute for each 100 h.p. of the peak.

Seventh Meeting.

The seventh meeting of the Municipal Engineers was held in Toronto on January 25th and 26th, 1910, and called to order with the following municipalities represented:—St. Thomas, St. Mary's, Waterloo, Woodstock, Preston, Hespeler, Guelph, Berlin, London.

Commercial Lighting Rates.

The discussion on this subject was opened by the Committee reading the decision reached by them at their last meeting.

Resolved, that it be the recommendation of this Committee that the Commercial Lighting Rates proposed by this Committee at the St. Thomas meeting be adopted, with an amendment that window and sign lighting be optional with the customer, at these same rates or on a flat rate which will bring in $6.00 per kw. connected up per month and renew all carbon lamps over and including 8 c.p.

During the discussion comparative reports were received from Guelph, Woodstock and Waterloo, comparing the annual bills of typical users under the different methods of charge. It was found that the square of floor area as a basis of the fixed charge was very difficult to adopt for this service, as there was no ratio fixed within reasonable limits between floor area and connected load.

After a full discussion the method of charge proposed by the Committee was adopted as the one recommended for use by all the municipalities.

Power Rates.

This discussion was opened by reading the schedule prepared by the Committee. This is given herewith:—

Schedule of Rates for Power.

Definitions:

Class A—Unrestricted service, 24 hours a day.
Class B—Restricted service, 24 hours a day.
Class C—Unrestricted service, 10 hours a day.
Class D—Restricted service, 10 hours a day.
Rates under classes B. and D. do not apply to users of 10 h.p. or less.

Flat Rate Method of Charge.

H.P. of motors connected—	1–3	4–10	11–25	26–50	51–100	101 up.
Base Rates—	$50.00	$48.00	$45.00	$43.00	$41.00	$40.00

Class A—100 per cent. of Base Rates. | Class C—90 per cent. of Base Rates.
" B— 90 " " " | " D—66 2/3 " " "

Differential Method of Charge.

H.P. of motors connected—		1–3	4–10	11–25	26–50	51–100	101 up.
Base Rates	Charge a h.p. connected—	$1.25	$1.20	$1.15	$1.10	$1.05	$1.00.
	Charge a k.w. hr.—	3½c.	3c.	2½c.	2c.	1½c.	1½c.

Class A—100 per cent. of Base Rates. | Class C—90 per cent. of Base Rates.
" B— 90 " " " | " D—66 2/3 " " "

These are the base rates adopted by the Committee of Municipal Engineers. The City of will allow a discount of per cent. from these rates. A discount of 10 per cent. will be allowed from the net bill if payment is made within 10 days of the date of the bill.

A recommendation was also made, and provided that the report of the Engineers be made up by the Secretary and referred to the Hydro-Electric Power Commission for their approval; this to include decisions regarding power, commercial lighting and lighting methods of charge, etc., and also all decisions regarding electrical apparatus; a copy of this report to go to each of the municipalities.

Schedule of Rates for Power.

Copies of the schedule adopted at the previous meeting were distributed and discussed. One or two changes in the working were suggested. (These have been made in the schedule as given here.)

Regulation of Railway Board of Ottawa.

It was recommended that each municipality secure a copy of the regulations of the Dominion Railway Board and of the Ontario Railway and Municipal Board relating to crossings.

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SIXTH ANNUAL REPORT

OF THE

ONTARIO RAILWAY

AND

MUNICIPAL BOARD

To December 31st, 1911

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SIXTH ANNUAL REPORT

OF

The Ontario Railway and Municipal Board

TO DECEMBER 31st, 1911

To the Honourable Sir John Gibson, K.C.,
Lieutenant-Governor of the Province of Ontario in Council.

In pursuance of Section 56 of "The Ontario Railway and Municipal Board Act, 1906," the Ontario Railway and Municipal Board beg leave respectfully to submit their sixth annual report.

Applications to the Board.

There were 234 formal applications made to the Board in 1911. There were a large number of informal applications, which were disposed of without formal sittings of the Board. Of the formal applications 220 have been heard and 14 are still pending. The cases that were pending and untried by the Board at the date of the last Report have since been disposed of. The cases now pending will be disposed of by the Board as soon as the parties are ready to go to trial.

The amount of revenue collected by the Board, in Law Stamps, in the year 1906, was $134.50; in 1907, $703.00; in 1908, $1,640.50; in 1909, $2,484; in 1910, $2,177; and in 1911, $2,279.50.

Reports to the House.

In pursuance of Rule 61a of the House, the Board has made enquiry and reported on six financial Bills that were introduced at the last session of the Legislature. Before reporting on these Bills, the Board thoroughly investigated the financial data supplied by the Municipalities at the request of the Board affecting the matters dealt with by the Bills. The results of the Board's investigations were as follows:—Bill No. 13, 1911, being an Act to confirm Bill No. 396 of the town of Palmerston, to consolidate its floating debt of $10.000, was favorably reported on to the House under the above Rule; Bill No. 15, respecting the Village of Beamsville, was also favorably reported upon after an investigation by the Board; Bill No. 27, being an Act to consolidate part of the debenture debt of the Town of St. Mary's, was also favorably reported on; also Bill No. 26, respecting the Town of St. Catharines; Bill No. 61, respecting the Town of New Liskeard; and Bill No. 53, respecting the Town of Sturgeon Falls. In some of these cases alterations or eliminations were made in the Bills as found necessary or expedient after investigation by the Board.

Annexations of Territory.

There were six applications for annexation of additional territory to Cities and Towns made to the Board in 1911. Orders for carrying into effect these extensions of Municipal boundaries will be found in the appendix.

In connection with the annexation to a Village of a portion of an adjacent Township, under section 16 of "The Consolidated Municipal Act, 1903," the Board recommends that the section should be amended so as to require notice of such application to be given to the Township affected.

"The Ontario Municipal Securities Act, 1908."

There have been 64 applications to the Board under "The Ontario Municipal Securities Act, 1908," for the validation of Municipal By-laws and the debentures issued thereunder. Of these 32 were to cure irregularities which, but for the jurisdiction conferred on the Board by this Act, could only have been validated by an Act of the Legislature.

The amount of debentures validated by the Board during the year 1911 was $1,353,855.94, and of these $895,711.94, par value, of debentures validation was rendered necessary to cure technical objections.

Assessment Appeals.

The Board have tried 11 Appeals from the Municipal Courts of Revision in the Province during the year 1911.

Railway Conditions in Toronto.

The Toronto Railway Company, in accordance with an Order of the Board, and under the supervision of the Board's Engineer, have been experimenting with safety devices for use on cars for the protection of passengers and the public using the highways. Particulars regarding these devices are included in the Engineer's Report, which will be found in the Appendix. (See Procedure File 907.)

The Board has approved of the Plans filed by the City of Toronto for its proposed civic car lines on Gerrard Street and Coxwell Avenue, from Greenwood Avenue to Main Street, and on St. Clair Avenue from Yonge Street to the G.T.R. Tracks. These lines will, when completed, afford transportation facilities to the rapidly filling up newer portions of the city in that neighbourhood. In connection with these proposed lines the Board has, on the application of the City, made an Order, under section 57 of "The Ontario Railway Act, 1906," directing the Toronto Railway Company to enter into interchange of traffic arrangements with the City regarding the traffic in respect of the new civic lines. The Board made this Order in order to facilitate the public in obtaining transportation from one part of the City to another. The Toronto Railway Company has appealed from the Board's Order to the Court of Appeal for Ontario, on the ground that the Civic Railway, not having been completed, the Board had no jurisdiction to make an Order, and that the above section only applies to traffic arrangements between completed railways. In view of this Appeal, which is still pending, the Board would recommend that the Legislation should, if necessary, be amended so as to make it plain that projected railways shall be entitled to obtain Agreements for interchange of traffic before completion of their construction, otherwise in many cases, it can be easily understood, that railways would not be undertaken unless they were assured of an opportunity to make reasonable interchange of traffic arrangements with feeding or connecting lines.

The Toronto and York Radial Railway Company, is seeking to deviate the southerly end of its Metropolitan Division westerly from Yonge Street so as to conform with the alterations being made in connection with the new projected Railway Terminal Works to be constructed by the Canadian Pacific and Canadian

Northern Railways at the south end of the Toronto and York Radial Railway's Metropolitan Line. The Board has instructed its Engineer to enquire fully into all the circumstances in connection with the proposed deviation, and its effect on public traffic and convenience. The Engineer is still engaged on this work, which is one of considerable magnitude.

The Board has made provision for the protection of traffic crossing the Toronto and York Radial Railway Line in the vicinity of Sunnyside and High Park, and has, by arrangement with the Dominion Railway Commission, secured the public the use of the Street Railway up to its present Eastern terminus. Owing to grade alteration work on the Grand Trunk Railway right-of-way, and the bridge at Sunnyside in connection therewith, it has been proposed to move the Eastern terminus of the Mimico Line westerly, about a distance of 1,000 feet, which would have left that portion of the Lake Shore Road without any street car service.

In connection with the City of Toronto's Application covering all matters in dispute with the Toronto Railway Company regarding the operation and routing of cars, and granting of transfers, the Board has made Orders for the granting of transfers as applied for by the City which will enable passengers to take any car proceeding in the direction of their journey, and to enjoy the privilege of continuing their journey on cars of other routes proceeding towards their destination. In connection with the application of the City, and pending the final disposition of the case, the Board has ordered a service to Keele Street on the Dundas Street Line, and by the Queen Street cars up Roncesvalles Avenue to Boustead Avenue. These Orders have disposed of the principal matters of complaint in connection with the service which were capable of adjustment, pending the investigation and report by Experts in connection with all matters affecting Street Railway conditions in Toronto.

The Toronto Railway Company has made the following track extensions during 1911:—

On Adelaide Street from Church Street to Spadina Avenue	2.638 miles.
On Bay Street from Front to Queen Street	1.174 miles.
On Harbord Street from Bathurst to Spadina Avenue	.953 miles.
On Ossington Avenue from Harbord Street to Bloor Street	.562 miles.
On St. Patrick Street from McCaul Street to Bathurst Street....	1.536 miles.
On Victoria Street from Adelaide Street to Richmond Street.....	.746 miles.
On Victoria Street from Queen Street to Wilton Avenue	
On Wilton Avenue from Sumach Street to E. side Don Bridge	1.702 miles.
On Wilton Avenue from Victoria Street to Sherbourne Street....	
	9.311 miles.

The total new track amounts to 9.311 miles, said track consisting of 70 pound, 7 inch, Tee Rail and 90 pound 7 inch girder rail.

In addition to the straight track extensions special intersections were installed at all the intersecting points of new track with existing rails, and where necessary to connect the new track.

There were constructed and placed in service during the same period 125 double truck convertible cars.

The expenditures during this period for the above track extensions, the special intersection work and other track improvements, overhead construction, rolling stock, buildings, machinery and other improvements amount in round figures to about $1,760,000.

RAILWAYS OUTSIDE OF TORONTO.

The Berlin Street Railway.

The Berlin Light Commissioners have made the following extensions and improvements during the past year:—

Installing two Y's	$1,579 26
Enlarging vestibules on cars	531 26
Additions and improvements to car barn	450 86
	$2,561 38

The Cornwall Street Railway Co.

This Railway has not found it necessary to make any improvements or extensions during the year 1911.

The Galt, Preston & Hespeler Railway Company.

This Company has extended its tracks 2,800 feet at an expenditure of $35,000, and also put in an Industrial Spur 240 feet long, costing $570. The Company has also spent $8,870 putting in three miles of heavier rails, and have expended $700 on a passenger car equipped with automatic air brakes.

In connection with its change from steam to hydro power, the Company has expended $5,500 on additional transformers and storage battery cells.

The Grand Valley Railway Company.

The Company has supplied the Board with the following list of additional improvements and extensions:—

Length of track, 7,200 ft.	$5,161 00
Ties	1,800 00
Fish plates	520 00
Poles, $756.00; steel poles, $245.00	1,041 00
Overhead material	1,201 40
Banding, $600.00; Frogs and Cross overs, $361.00	961 00
Steam Roller	10 00
Paving and concrete work	4,560 00
Special work at intersection of Colborne Street and South Market	13,000 00
	$28,254 40

The Hamilton Street Railway Company.

This Company reports the following extensions and improvements during the year 1911:

Tracks—

Track extension, none.	
Half interlocker installed, King and Ferguson Avenue	$1,661 02
Rebuilt 9,558 ft. of single track, with 87 lb. rails and steel ties in concrete	28,640 26

Raised and changed location of 6,300 ft. of single track at request of City of Hamilton	6,319 19
Overhead—	
Feeders and returns added	390 51
Placed electric welded bonds on 8.66 miles of single track..	2,790 08
Rolling Stock—	
Applied air brakes to six cars	3,492 66
Additional Motor Equipment	881 15
Rebuilt six cars	2,235 10
Additional substation and equipment provided by Hamilton Cataract Power, Light & Traction Co. for the use of Hamilton Street Ry.	40,000 00
A total of	$86,409 97

THE HAMILTON & DUNDAS STREET RAILWAY.

This Company has made extensions and improvements during 1911 as follows:—

Tracks—	
Track extensions, none.	
New guard rails	$300 69
Dredging canal and changes in waterways	6,535 61
Overhead—	
Placed electric welded bonds on 5.4 miles of single track..	1,422 37
A total of	$8,258 67

THE HAMILTON, GRIMSBY & BEAMSVILLE RAILWAY.

The following extensions and improvements have been made by this Company during 1911:—

Tracks—	
2,700 ft. of new switch and passing track	$5,413 43
Rebuilt 6,671 ft. of track in the City of Hamilton with 87 lb. rails and steel ties in concrete	21,287 27
Overhead—	
New feeders	1,181 46
Telephone lines, instruments, etc.	1,342 59
Placed electric welded bonds on 5.5 miles of track	1,407 13
Rolling Stock—	
Applied air brakes to nine cars	5,521 94
Additional motor equipment	2,265 56

Substation—	
Additional transformers	540 35
Buildings—	
New shelters, platforms, etc.	623 81
Fitted up new waiting room in Grimsby	95 56
Repairs and increasing capacity of freight station at Hamilton	1,494 60
A total of	$41,573 70

Upon the application of the Township of Saltfleet, the Board fixed convenient stopping places in that township to be observed by the Company's passenger cars.

This Company has secured the approval of the Board to its new Industrial Spur into the Wagstaffe factory at Hamilton.

There has also been added to the available equipment of the Hamilton & Dundas Railway and the Hamilton & Beamsville Railway three passenger cars, at a cost of $30,262.80, and one combination express car and snow-plow at a cost of $8,144.97, total cost $38,407.77.

The Huntsville & Lake of Bays Railway Company.

The above Company has not found it necessary to make any track extensions in 1911, but have expended $907.80 on track improvements, rolling stock, machinery and general repair work.

The International Railway Company (Niagara Falls Park and River Division.)

The Niagara Falls Board of Trade having applied to the Board for reduction of the fares charged by the Niagara Falls Park & River Division of the International Railway Company, a new and reduced tariff of fares has been arranged with the approval of the Board.

This Company has, during 1911, in addition to the ordinary repairs and maintenance, effected a renewal of 23,400 feet of 2/0 trolley wire from the Hydraulic Power Plant to Bridge Street, at a total cost of $1,596.11.

The International Transit Company.

This Company reports expenditures for improvements during 1911 as follows:

Track improvements	$844 54
Overhead construction	111 13
Buildings, etc.	562 00
Wharves and docks	246 49
	$1,764 16

THE KINGSTON, PORTSMOUTH & CATARAQUI ELECTRIC RAILWAY CO.

This Company has not found it necessary to make any extensions or improvements during 1911, beyond the ordinary upkeep of the track and overhead structure.

THE LONDON STREET RAILWAY COMPANY.

This Company reports extensions, reconstruction, etc., during 1911, as follows:—

Track and Roadway—	
Junction of Dundas and Richmond:	
Reconstruction of Diamond Special Work	$8,571 30
Reconstruction of 1.52 miles of track radiating from Dundas and Richmond	27,831 31
Reconstruction of Richmond and York	3,024 63
Reconstruction of Ridout and Dundas	2,122 59
Reconstruction and new paving, Dundas from Ridout Street to River	1 027 76
New spur track into Barn	785 57
	43,363 16
Electric Line—	
Barn	23 94
Buildings and Fixtures—	
New store room and paint shop	1,770 61
Miscellaneous Equipment—	
Sweeper	3,246 74
Total	$48,404 45

MOUNT MCKAY & KAKABEKA FALLS RAILWAY COMPANY.

This Railway Company reports the following expenditures for improvements during 1911:—

Track improvements	$2,762 70
Rolling stock, buildings, machinery, etc.	12,777 79
Park and power development	1,312 11
Total	$16,852 60

NICKEL RANGE RAILWAY.

This Railway is in the course of construction, consequently no extensions have been made during 1911 which could be classed as extensions or improvements.

The Ottawa Electric Railway Company.

This Company reports the following outlays during 1911 for extensions and improvements:—

Track improvement	$8,333 43
Overhead structure	7,639 50
Rolling stock	132,804 15
Car barn equipment	1,549 55
Addition to water plant	54,432 98
Total	$204,759 61

Point Anne Railway.

The Board has approved and certified the Seymour Power & Electric Company's plans for its power line crossing over the above railway at Lot 19, Broken Front Concession, Township of Thurlow, in the County of Hastings.

The Port Arthur & Fort William Railway.

The Board has approved the plans and profiles for this Company's extension of Neebing Avenue, from William Street to Montreal Street, and from Montreal Street to the Kaministiquia River, and also the plan and profile of the Company's Slate River Line.

This Railway has reported to the Board its extensions and improvements during 1911 as follows:—

Track improvements	$11,595 20
Track extensions	4,587 90
Rolling stock	28,590 65
Car barn building	2,293 13
Railway construction	19,979 05
	$67,045 93

Expenditure 1911—

Ballasting, Surfacing and Finishing Mission Extension, 13,200 ft.	$8,829 95½
Ballasting, Surfacing C. N. R. Crossing to G. T. P. Bridge, 2,340 ft.	1,259 35
Ballasting, Surfacing on Victor Street, 1,244 ft.	944 82
Car barn layout complete	6,341 90½
Empire Elevator Extension, complete, including 4 diamonds	13,178 42½
Half Interlocker, Pacific Avenue, part expense	449 95
Railway Crossings Account, Yonge Street, renewal of diamonds and upkeep	3,894 47
Car Purchase, four double truck cars	28,101 19
Wye, Neebing Avenue, material only	1,322 66

Feed system, West end	1,993 53
G. T. P. Interlocker	97 77
Steel Poles, Victoria Avenue	1,011 40
C. P. R. and C. N. R. Interlocker	53 25
Proposed extension, G. T. P. Terminal	10 73
Crossover, Neebing Avenue	13 54
Bethune Street, Neebing Bridge, Labor and Surfacing overhead work, labor and material	127 97
Syndicate Avenue, Victoria Avenue to Duncan, Paving, Asphalt blocks, concrete work, material, overhead work	6,366 31
Total	$73,997 22½

St. Thomas Street Railway.

The Street Railway Department of St. Thomas reports that there were no track extensions made during 1911, and no improvements made on track, overhead structure, buildings, or machinery beyond the necessary upkeep charges.

The Sandwich, Windsor & Amherstburg Railway.

The Railway reports improvements during the year 1911, as follows:—

Tracks. 3,051 feet	$6,817 31
Power house	181 30
Real estate	752 50
Cars	12,164 22
Lighting plant	21,265 68
	$41,181 01

The Sarnia Street Railway Company, Limited.

This Company reports that there were no track extensions made during 1911, but reports the following expenditures for improvements, etc.:—

Roadbed	$820 76
Overhead	3,539 71
Equipment	594 02
	$4,954 49

The Temiskaming & Northern Ontario Railway.

This Railway reports its extensions during 1911, and the cost of same as follows:—

	Miles.
North Bay-Cochrane	252.8
Charlton Branch	7.8
Kerr Lake Branch	3.9

Haileybury Branch	1.64
Porcupine Branch	33.25
Nipissing Jct. Spur	4.
Liskeard Spur	.64
	304.03
Miles of yard tracks and sidings	85.94
Total mileage—all tracks	389.97
Mileage constructed during the year 1911:—	
Porcupine Branch	33.25
Nipissing Jct. Spur	4.
	37.25
Miles of yard track and sidings	7.55
Total	44.80

THE TORONTO SUBURBAN RAILWAY COMPANY.

This Company reports the following extensions and improvements during 1911:—

Track improvements	$7,398 20
Overhead structure	971 35
Rolling stock—none purchased.	
Buildings	241 80
Machinery—none.	
Other improvements—none.	

THE TORONTO & YORK RADIAL RAILWAY COMPANY.

This Company reports the following extensions and improvements during 1911:—

Track construction, including new switches, additional barn track, and replacing of light rail with No. 80 rail.	$12,934 50
New overhead lines covering the above trackage	1,269 95
Real estate and buildings, including addition to Aurora station and yard: numerous stations and shelters along the road: purchase of gravel pit on Scarboro' Division, and addition to repair shop	28,673 32
Bridges and culverts, including new bridge at Mimico Creek, on our Mimico Division	10,912 93
Additional tools and machinery	1,443 05
Motor equipment, including new motors, replacing obsolete equipment, and other motor equipment	6,860 50
Miscellaneous equipment, including new snow plow, work car, automatic air brakes	11,119 58
Power plant, additional power plant machinery	2,529 19
	$75,743 02

THE WINDSOR & TECUMSEH ELECTRIC RAILWAY. (OPERATED BY THE SANDWICH WINDSOR & AMHERSTBURG RAILWAY COMPANY.)

This Railway reports track extensions to the amount of $3,776.61.

PUBLIC UTILITIES.

We have the honor to submit reports for the year ending 30th June, 1911, upon the Electric Railways and Electric Street Railways operating in the Province of Ontario. These reports reveal a slight gain in traffic returns over 1910. In 1911 there has been an increase in car mileage of 1,699,588 miles; an increase in passengers carried of 23,719,855; an increase in earnings of $862,134.02; an increase in expenses of $1,112,309.70. There has been an increase in trackage of 18.57 miles.

These reports include partial data relating to the Ottawa Street Railway and the Hamilton Radial Railway. These railways operating under Dominion charters have not reported to the Board, and the data given is derived from the report of Comptroller of Dominion Railway Statistics.

Forms for returns were sent out to all the municipal corporations operating public utilities in the Province. In the majority of cases the forms sent out have been completed and returned to the Board. The returns have been tabulated and appear in the appendix.

In the report submitted by the Board for the year 1907, attention was directed to the difficulty experienced in obtaining from some municipalities adequate information relating to public utilities operated by them. In some cases municipal officers frankly confess their inability to supply the information required by the Board, advancing the plea that the systems of accounting and of record keeping in operation, preclude the possibility of furnishing much essential data sought by the Board.

In some cases municipal clerks disclaim any responsibility in furnishing information to the Board, asking the Board to designate the Statute under which the Board puts upon them the additional work incident to preparing reports of the operation of public utilities. The Board therefore again express the opinion that, in the public interest, a uniform up-to-date system of accounting and record keeping should be installed in every municipality operating public utilities, so that every muncipality will have at hand all the material necessary to furnish to the Board from year to year the vital data relating to the receipts and outlays in the operation of public utilities, and all statistics necessary to an intelligent analysis and study of the working of such utilities, in order that comparisons may be made with the results attained by other municipalities.

The Board renew the recommendation that it be given authority to install a uniform system of accounting in all municipalities operating public utilities, so that they may be able effectively to carry out the provisions of Section 57 of the Ontario Railway and Municipal Board Act.

Returns from municipalities operating gas, electric light and waterworks plants, telephones and railways, will be found in the Appendix; also returns by Railway Companies under the jurisdiction of this Province. These returns have been published from year to year by the Board, and are valuable as statistical data for use by municipalities and companies and persons interested in their operation. The demand for copies of the Board's reports for reference to these summaries and statistics has been large and is increasing from year to year.

Railway Returns.

Summarized tabulation of Returns by Railways under the Board's jurisdiction will be found in the Appendix, alphabetically arranged.

Accidents.

A tabulated summary of the accident reports received by the Board during the year 1911 appears in the Appendix, which shows that 33 persons were killed and 541 persons injured during the year. In 1908, 26 persons were killed and 391 injured; in 1909, 16 killed and 349 injured; in 1910, the reports show 24 persons killed and 399 injured.

Sittings of the Board.

The record of the sessions of the Board and an abstract of the proceedings, together with opinions of the Board and the formal Judgments or Orders, appear in the Appendix.

Expropriation Cases.

Under the provisions of Sec. 29 of "The Public Works Act" (10 Edw. VII., Chap. 11) the Board were given jurisdiction to fix the compensation for lands expropriated. The Niagara Falls Park Commissioners, in connection with the Niagara Falls Park Boulevard, had about forty of these cases. They have all been disposed of. There have been no appeals to the Court of Appeal from the findings of the Board in connection with these cases.

Telephone Systems.

During the past year the Board has approved the tariffs of 119 telephone systems, the total number of companies, municipalities or proprietors which have reported their tariffs being now 334. These systems, a list of which is included in this report, are operating over 40,000 telephones, and represent a capital expenditure of approximately $3,250,000.

There are still a large number of systems, the proprietors of which have not complied with the provisions of "The Ontario Telephone Act, 1910," in regard to furnishing reports of their tariff, and the Board is under the necessity of repeating its recommendation of last year that it be made incumbent upon every person owning or operating a telephone system, to register the undertaking, and obtain a certificate of such registration from the Board, before being permitted to furnish service to the public or make any charge therefor. The experience of the Board during the past two years, in regard to the furnishing of the requisite information, is such that it would appear to be necessary to impose a penalty upon those systems neglecting to comply with the provisions of the Act respecting the filing of tariffs, etc.

There has been a marked development of telephone systems in the township municipalities, under the provisions of "The Local Municipal Telephone Act, 1908," during the past year, there being now 28 of such systems, in operation or under process of construction or organization. The board has been called upon by a number of municipalities for advisory and supervisory assistance in connection with the organization and construction of these systems, and there is every reason

to believe that the rendering of such assistance has proved a great boon to the rural communities. The Board recommends that it be made obligatory upon every municipality to submit to the Board plans and specifications of each system proposed under this Act, together with particulars of the estimated cost of its establishment, and the amount to be levied against the subscribers in payment of principal and interest, before any debt is incurred in respect of such system. If this recommendation were adopted, the prospective subscribers would have a reasonable guarantee that they would not be called upon to contribute a larger sum towards the cost of construction than that provided for under the original by-law for the establishment of the system. Under the Act as it stands at present, the subscribers have no such protection.

The Board has secured certain detailed information regarding systems established under "The Local Municipal Telephone Act, 1908," which is included in this report.

During the year 1911 the Board has received numerous applications and complaints regarding matters which come within the provisions of "The Ontario Telephone Act, 1910." These may be summarized as follows:

(*a*) Applications for physical connection with adjacent telephone systems, under section 9 of the Act.

(b) Petitions for telephone service under section 12 of the Act.

The policy of the Board in regard to these matters has been to instruct its expert to endeavor to arrange an amicable settlement between the applicant and respondent, with the result that, in all but two cases, a voluntary agreement was completed, and subsequently ratified by an order of the Board. The Board is of opinion that this policy has produced results more advantageous to the public, than would have been possible under an order of the Board without first giving the parties interested an opportunity, with the assistance of the Board's expert, of voluntarily arranging terms to their mutual benefit.

The experience of the past two years in connection with the telephone business of the Provinces has impressed the Board with the importance of adopting such measures for the regulation of all systems within the jurisdiction of the Legislature as will ensure to the public the most efficient service. Among the various conditions which have come within range of the Board's observation, as being fit subjects for remedial legislation are the following:

1. The multiplicity of small systems, the owners of which do not appreciate their obligations as occupiers of the public highway, and operators of a public utility, to serve the public and provide an adequate service.

2. The number of unincorporated partnerships and co-operative associations operating systems under conditions which do not admit of capable management and afford no satisfactory guarantee of responsibility for their financial indebtedness. While the members of these systems may be liable as individuals for the indebtedness of the undertaking, and the proper administration of the service, the present method of organization renders it exceedingly difficult, if not impossible, to ensure the prompt and satisfactory performance of the duties and obligations which devolve upon them as owners of a public utility. The fact that many of these systems are composed of cheap and inferior equipment, and that the proper maintenance of the plant is neglected, renders it the more necessary that such steps be taken as will secure their reorganization upon a more sound commercial and business-like basis.

3. In some parts of the Province the poles and wires of two or more systems are erected along portions of the same highway. The board would suggest that where practicable, and where such lines are within the jurisdiction of Ontario, that such duplication and paralleling of pole leads should be avoided by the joint occupation of the poles by the wires of such systems.

The existence of these conditions would indicate that while the existing legislation has done much to improve the telephone service in Ontario, a general investigation of the whole question would be productive of much information not at present available, and would greatly facilitate the adoption of such further measures as may be necessary for the provision of an adequate telephone service throughout the Province of Ontario, and more particularly in the rural districts.

All of which is respectfully submitted.

JAMES LEITCH,
Chairman.
A. B. INGRAM,
Vice-Chairman.
H. N. KITTSON,
Commissioner.

APPENDIX.

RECORD OF MEETINGS AND ABSTRACT OF PROCEEDINGS OF BOARD DURING YEAR 1911.

PROCEDURE FILE No. 660.

Between the Ingersoll Telephone Company, Limited, Applicant, and The Burgessville Telephone Company and the Bell Telephone Company of Canada, Limited, Respondent.

March 28th. Board allows withdrawal of Application by Applicants and directs that they pay $10.00 for law stamps for hearing herein.

PROCEDURE FILE No. 746.

Between Herbert Waddington and Herbert N. Winter, Applicants, and the Toronto & York Radial Railway Company, Respondent, (for better passenger transportation, &c., &c.).

February 1. 2.30 p.m. Hearing resumed pursuant to adjournment adjourned to 15th inst., 2.30 p.m., at request of Counsel for North Toronto, pending action by Toronto *re* Annexation of North Toronto.

February 15. 2.30 p.m. Hearing continued and concluded. Judgment reserved.

March 14. Judgment delivered.

May 9. Application to settle order returnable—all parties heard and application adjourned, *sine die,* to give Counsel opportunity to apply to the Board.

May 22. Order settled—Plans of proposed switches filed, (P.F.P. 80).

June 2. Plan of old and proposed new switches filed.

June 7. Board appoints 15th inst., 2.30 p.m., at its Chambers, to fix length, etc., of switches necessary to furnish service directed by order of 8th March, 1911.

June 15. Hearing adjourned at request of Counsel for City and North Toronto, to Friday, June 23rd, at 2.30 p.m., pending proceedings for annexation of North Toronto to Toronto.

June 23. Hearing adjourned to 11th September, at 2.30 p.m., pending annexation.

September 11. Hearing adjourned to 25th September, at 2.30 p.m., pending annexation.

September 25. Hearing continued—2.30 to 4.30 p.m., and adjourned to Friday, 29th inst., at 2.30 p.m.

September 29. Hearing—2.30-4.30 p.m. Judgment reserved.

October 10. Judgment of Chairman of Board delivered approving switches proposed by Railway Company.

October 11. Judgment of Vice-Chairman and Mr. Kittson delivered disapproving same.

November 8. Appointment to settle order returnable, proceeded with and adjourned to a date to be fixed by the Secretary, pending consideration by the Board of agreements and objections of counsel in settling order.

November 10. Chairman having considered agreements and objections of Counsel *re* form of order, settles form of same.

Order.

November 17. Notice of Motion for Leave to Appeal received from Solicitor for City of Toronto.

November 17. Notice of Motion for Leave to Appeal received from Solicitor for Township of York.

November 23. Notice of Motion for Leave to Appeal received from Solicitor for the Town of North Toronto.

December 30. Order of Court of Appeal received giving City of Toronto and Town of North Toronto Leave to Appeal from paragraphs 1 and 2 of Board's Order dated 2nd October, 1911.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

BETWEEN:

Herbert Waddington, of the Town of North Toronto, in the County of York, and Herbert N. Winter, of the City of Toronto, in the County of York, Druggist.

Applicants,

and

The Toronto and York Radial Railway Company (Metropolitan Division), and the Corporations of the City of Toronto, the Town of North Toronto, and the Township of York, made parties by the order of this Board, dated the 19th day of September, 1910,

Respondents.

OPINION OF THE BOARD.

This is an application complaining that the Toronto and York Radial Railway are operating their railway in an inefficient and unsatisfactory manner to the detriment of the public and the Applicants, in that their cars are overcrowded and insufficient to accommodate the passenger traffic that the service is inefficient by reason of the delays incurred in the passing of the cars on switches, and the moving of freight on the road; and that by reason of the unsatisfactory operation of the road, cars are left for a considerable period standing in front of the premises of the applicant, Herbert N. Winter, and access to his premises is thus interfered with to his serious loss and damage.

The applicants ask that an order may be made by the Board that the Company furnish a sufficient number of cars and provide a sufficient number of switches, and change their tracks and operations so as to give an adequate service for the transportation of passengers on their railway.

The Company was originally incorporated under the name of "The Metropolitan Street Railway Company of Toronto," by Statutes of Ontario, 1887, 40 Victoria, Cap. 84. The Company was authorized to construct and operate a double or single track railway with the necessary side tracks and turn-outs. The Company was also authorized to carry freight. Authority was given to the Company to enter into agreements with the city of Toronto and adjoining municipalities, or any of them, relating to the construction of the railway, the pattern of the rails, time and speed of running cars, and generally for the safety and convenience of passengers, the conduct of the agents or servants of the Company, and the non-impeding or obstruction of ordinary traffic.

By statutes of Ontario, 1893, 56 Victoria, Cap. 94, the name of the Company was changed from "The Metropolitan Street Railway Company of Toronto" to "The Metropolitan Street Railway Company," and agreements set out in Schedule "A" to the Act, with the County of York, bearing date the 25th June, 1884, the 20th January, 1886, the 28th June, 1889, the 17th December, 1889, the 20th October, 1890, and the 2nd March, 1891, were validated and declared to be within the powers of the parties, and to be binding upon the Corporation of the County of York and the Metropolitan Street Railway Company.

The first agreement, 25th June, 1884, provided for the construction of the railway, with switches and turnouts not to exceed four, upon and along Yonge Street lying between the then northerly limit of the City of Toronto and the Town Hall of the Township of York at Eglinton. The track and rails were to be laid on the west side only of the street, between the macadam or gravel part of the highway and the ditch.

The second agreement, 20th January, 1886, provided for the extension of the railway tracks to a point about three-quarters of a mile further north on Yonge Street to a point 300 yards north of the Methodist Church on the east side of Yonge Street. This extension was to be located and constructed on the west side of the street between the macadam or gravel and the ditch. The Company had the right to construct two switches in connection with this extension.

The third agreement, 28th June, 1889, gave the right to the Company to operate their railway by cable or electricity in addition to horse power they then had the right to operate with. It also gave them the right to extend the existing switches or turn-outs as might be found necessary from time to time for the efficient working of the railway, provided, however, that in case the Council of the Corporation of the County of York, or the County Commissioners should prefer hav-

ing a double track along the whole length of the railway instead of increasing the number of switches or turn-outs already authorized, the Company were to lay down a double track.

The fourth agreement, 17th December, 1889, gave the Company power to build additional switches.

The fifth agreement, 20th October, 1890, gave the Company the right to further extend their railway to York Mills hill on Yonge Street, with power to construct two turn-outs or switches on this extension.

The sixth agreement, 2nd March, 1891, gave the Company the right to change the railway to standard gauge and to change the rail to a standard centre-bearing T rail.

On the 22nd of November, 1889, the Corporation of the County of York passed By-law No. 592, Schedule "B" to the Act, empowering the Company to extend their railway on Yonge Street to Richmond Hill. None of these agreements conferred upon the Company any greater right than to maintain a single track railway on the west side of Yonge Street between the macadam or gravel and the ditch.

By Statutes of Ontario, 1897, 60 Victoria, Cap. 92, the name of the Company was changed to "The Metropolitan Railway Company," with power to extend their line of railway to Lake Simcoe. This Act expressly provided that the powers, rights, and liabilities of the Company should not be affected by the change of name, and all contracts and agreements made, and rights, and franchises acquired by the Company, under its prior corporate names, should remain valid and binding.

Section 4 provided that the railway might be carried along and operated upon such streets and highways as have been or may be authorized by the respective corporations having jurisdiction over the same, and subject to the restrictions and provisions in the Act contained, and under and subject to any agreements between the Company and the councils of any of the said corporations.

Section 6 provided that in the event of the City of Toronto extending its limits so as to include any portion of the said railway such extension of limits should not affect the rights of the Company at the date of such extension.

Section 15 validated the agreements between the Corporation of the County of York and the Company, bearing date respectively, the 6th day of April, 1894, and the 7th day of February, 1896, which are set forth in Schedules "A" and "B" to the Act.

By Section 32 of the agreement, Schedule "A," it is provided that the privileges and franchises granted by the agreements referred to in the recitals to this agreement, and this agreement, are the exclusive rights to operate a street railway on that portion of Yonge Street between the southerly terminus of the Company's railway and the present northern terminus at York Mills hill, and on Yonge Street between the present northern terminus and Lake Simcoe, for a period of thirty-five years from the 3rd of February, 1894, as far as the County had power to grant the same, with a right of renewal at the expiration of such term and of each successive future term for such period and upon such terms and conditions as may be mutually agreed upon between the County and the Company, or to be determined by arbitration under the provisions of The Municipal Act.

Section 24 provided that when the street between the limits of the City of Toronto and Mount Pleasant Cemetery was to be paved in a permanent manner on concrete or other foundation, then the Company on being required by the County so to do, should remove the rails and tracks to, and lay a double track

along the centre of the street between such limits, according to the best modern practice. By this section the Company are not required to do the excavating necessary for the laying of such double tracks or prepare foundations, but the County are. The Company are only bound to bear the expense of removing the tracks and rails and laying the same on the foundation so to be prepared. Neither are the Company bound to keep in repair such permanent roadbed occupied by its track allowances. This is the only reference to double tracking in any of the agreements.

Subsection 3 of section 7 of the agreement gave the Company authority to put in and maintain such switches and turn-outs as may be from time to time found necessary for the operating of the Company's line of railway on Yonge Street, or leading to any of the cross streets leading into or from Yonge Street, or for the purpose of leading to any track allowances or rights of way on lands adjacent to Yonge Street where the Company's line deflects from Yonge Street, or to the Company's power houses and car sheds, and the Company from time to time can alter the location of such switches and turn-outs.

Section 8 of the agreement provides that the Company may, with the consent of the Committee, change the location of its lines of track to any portion of Yonge Street, other than those now or hereafter to be occupied by the Company's lines of tracks.

Section 26 gave the Company the right to use its railway for the conveyance of such freight, goods, wares or merchandise as shall from time to time be named by the Committee, but that the Company shall not be compelled to carry more than four tons of freight per car, &c.

By the Ontario Statutes of 1900, 63 Victoria, Cap. 31, Sec. 2, the agreements with the County of York enure for the benefit of the municipalities now controlling or owning Yonge Street, viz., the Corporations of the City of Toronto, North Toronto, and the Township of York. The Board made these Corporations parties by order dated the 19th day of September, 1910.

The Board's Engineer on the 11th day of December, 1908, reported to the Board that the only permanent remedy for the complaints then made against the traffic conditions on Yonge Street was to double track through North Toronto and to substitute large double truck cars for the cars then in use. The Board on the 15th day of February, 1909, not having the power, made no order for double tracking but did order, amongst other things, the Company to remove the Glen Grove cars then in use and substitute four large double-truck cars by the first day of May, 1909. That order was complied with so far as the cars were concerned, but an appeal to the Court of Appeal is still pending in reference to the macadamizing between the rails and 18 inches on the outside. The Board are still of opinion that the Company's railway should be double tracked up Yonge Street through North Toronto, and conditions having changed the double tracking should be carried to the Golf Links. If the Board has the power, we will order double tracks to be laid on Yonge Street from the Company's terminal in the City of Toronto to the Golf Links, upon such terms and conditions as the Board deems reasonable and just and fair to all parties. In addition to that we will order the Company to furnish a sufficient number of cars to give the public a five minute service from their Toronto terminus to the Golf Links during the season, from the 15th of April to the 1st of November, both inclusive, and a ten-minute service during the rest of the year. The Board, however, are of opinion that they have not the power or authority to make an order for double tracking.

Counsel for the Applicants wants double tracks, and contended that Sections 9 and 10 of Statutes of Ontario, 1910, 10 Edward VII., Cap. 83, give the Board power and authority to order the double tracking of this railway.

Counsel for the City of Toronto, the Town of North Toronto and the Township of York, strongly object to double tracking, and contend that 10 Edward VII., Cap 83, sec. 10, does not empower the Board to make such an order. They say that it is only in the case of the Company having a franchise or right from the municipality to construct double tracks that the board could order a double track. If the Company has only a franchise for a single track the Board cannot order the Company to double track. To do so would be to give the Company a different right or franchise than that which has been granted to them by the municipality. They say the onus is upon the Applicants when they ask for double tracks to show that the Company has the right from the municipality to build them on the street, and it is only when they show that the company has such a right that the Applicants can successfully ask the Board to make an order.

Counsel for North Toronto alleges that if double tracking was ordered, the excavations and construction of proper foundations would be oppressive to that municipality, in fact, having in view the improvements which the Town has in contemplation and is being called upon to make at once, would cause them financial embarrassment. While this is not an answer in law to the application, it is a circumstance that the Board will weigh carefully and well in determining what is reasonable and fair to all parties, if we have as a matter of law the right to make an order to double track. The Board are of opinion that Sections 9 and 10 of 10 Edward VII. give them no such right, keeping in mind the franchise agreements between the Company and the County of York.

If the Board are right in this opinion, then we order the Company to extend their Glen Grove service to the Golf Links and construct a sufficient number of switches and turn-outs, and put a sufficient number of suitable cars in commission, as will enable them to give the public a ten-minute service from Toronto to the Links from the 15th of April to the 1st of November, and a fifteen-minute service during the rest of the year.

The Board also think that the Company should regulate their traffic so that up to twelve o'clock noon the south-bound cars should have the right of way and the north-bound cars would have to take the switches, and that after twelve o'clock noon the north-bound cars should have the right of way and the south-bound cars should take the switches or turn-outs.

The Board are also of the opinion that the Company should apply their system of car-despatching which they have adopted on the Newmarket line to their line between Toronto and the Golf Links.

The Board reserves further consideration and direction and makes no order for costs except that the Company shall pay $20.00 for stamps on the final order.

Dated at Toronto this Eighth day of March, 1911.

(Sgd.) James Leitch,
Chairman.

(Sgd.) A. B. Ingram.
Vice-Chairman.

(Sgd.) H. N. Kittson.
Commissioner.

Seal.

Order.

Upon the application of the above named Applicants, dated the 8th day of September, 1910, for an Order that the Toronto & York Radial Railway Company (Metropolitan Division) do furnish a sufficient number of cars, and provide a sufficient number of switches and change their tracks and operations for the transportation of passengers, and said application having been adjourned from time to time by the Respondents other than the Railway Company, and having come up for final hearing on the 15th day of February, 1911,

Upon hearing the evidence adduced on behalf of the parties, and

Upon hearing Counsel for the Applicants and the Respondents, respectively, the Board was pleased to direct that the matter should stand over for judgment and the same now coming on for Judgment;

It is ordered that the Toronto and York Radial Railway Company do extend its Glen Grove service to the Rosedale Golf Links, being stop No. 26, and do construct, put in and maintain such switches and turn-outs as will enable the Company to give the service hereinafter provided for, but none of such switches to be put in on Yonge Street south of the City limit as it existed on the 22nd January, A.D., 1888, and that the said Company do put into commission a sufficient number of suitable cars to enable the Company to give the following services between the Company's terminus in the City of Toronto and Glen Grove and between the Company's terminus in the City of Toronto and the Golf Links, namely, the same service as at present from the said terminus to Glen Grove and not less than a ten minute service each way between the southern terminus of the Toronto & York Radial Railway at North Toronto and the Golf Links between the fifteenth day of April and the first day of November in each year, and during the other portions of the year a fifteen-minute service each way between the said last mentioned points, and that the said Company do give and provide such service;

And it is further ordered that the location, length and construction of such switches or turn-outs requisite to give such service shall be approved by the Board and that the Company do forthwith submit plans showing the location and length of such switches and do build such switches in accordance with the said plans when approved by the Board;

And this Board doth further order and direct that the necessary works to provide the said service shall be made by the Company with all possible despatch and same shall be completed not later than the first day of August, 1911, or within such further time as the Board may allow;

And this Board doth further order that the same system of car despatching as has been adopted and is in use by the said Railway on the line to Newmarket or such other suitable system of car despatching as the Board may determine upon, be adopted, applied to and put in use in connection with the service between the terminus of the Railway in North Toronto and the Golf Links;

And this Board doth further order and direct that in the running of cars on each day up to twelve o'clock noon, the south-bound cars shall have the right of way and the north-bound cars shall take the switch, and from and after twelve o'clock noon and up to midnight on each day the north-bound cars shall have the right of way and the south-bound cars shall take the switch;

And the Board reserves further consideration of this matter and further orders and directions in connection therewith;

This Board doth further order that the Company do pay twenty dollars stamps upon this order, and the fees, if any, required to be paid for Engineer's services, if

same shall be required by the Board, but save as in this paragraph otherwise provided makes no order as to costs herein.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

REPORT.

Gentlemen:

The attached tabulated sheet shows the conditions at present on the Metropolitan and York Radial Railway, with data relative to their proposed passing switches.

The local cars are 48 ft. over all, including fenders; the through cars are 61 and 65 ft. over pilots. I am,

Yours very respectfully,
(Signed) J. F. H. WYSE.

TORONTO AND YORK RADIAL RAILWAY.

METROPOLITAN DIVISION.

See Plan of Proposed Switches Between Toronto and Golf Links.

Total Single Track to be Supplied with Switches—20,375 ft.
Present Sidings, total length—2,241.5 ft.
Proposed Sidings, total length—8,006 ft.

City of Toronto.

Toronto to North Limits—3,905 ft. single track.
In this district at present there is one siding, 123 ft. tangent, at Deer Park.
Proposed New Siding at car barn, 306 ft. tangent.
Proposed lengthening of Deer Park Siding, 228 ft of tangent, giving 351 ft.
Total increase of siding, City of Toronto—534 ft. tangent.

Township of York.

1,575 ft. in this section, present single track remains unchanged.

North Toronto.

In this district at the present time there are four sidings with tangent totalling 648.5 ft.
Proposed lengthening of four switches giving additional tangent totalling 4,266 ft.
Proposed new siding at Bedford Park giving additional tangent of 1,025 ft.
Total increase of tangent sidings in North Toronto—4,642.5 ft.

COMPARISON

Showing length of present and proposed Sidings.

—	Present Siding. Total Length.	Present Siding. Tangent.	Proposed Siding. Total length.	Proposed Siding. Tangent.
	Ft.	Ft.	Ft.	Ft.
Car barn	.....	.....	600	306
Deer Park	417	123	645	351
Davisville	454	160	1,667	1,373
Eglinton	449.5	155.5	1,582	1,288
Glen Grove	444	150	1,116	822
Bedford Park	.....	.....	1,319	1,025
York Mills	477	183	1,077	783
Totals	2,241.5	771.5	8,006	5,948

NOTE.—"Present Siding Tangent" equals total length of siding less 294 feet which is the distance from points of switches to beginning of straight track within siding).

Toronto, Ont., September 30, 1911.

After hearing the above application your Board made an order (dated March 18th, 1911), in which the Railway Company was ordered to install and put in operation a certain improved service mentioned, and now on fyle with the Board.

The Toronto and York Radial Railway Company fyled a Plan dated (May 29th, 1911), showing the location and length of switches, including lengthening of the present switches, and installing additional switches, at the Car Barn, and Bedford Park P.O., necessary to enable them to give the improved service and comply with the Board's Order.

These switches are shown on the Plan in detail as follows:

1—Car Barn from Station 20+50 to Station 26+50.
2—Lengthening Deer Park from Station 32+00 to Station 38+45.
3—Lengthening Davisville from Station 60+51 to Station 77+18.
4—Lengthening Eglinton from Station 99+68 to Station 115+50.
5—Lengthening Glen Grove from Station 131+41 to Station 142+57.
6—Installing New Switch at Bedford Park from Station 162+61 to Station 175+80. (and)
7—Lengthening York Mills Switch from Station 191+21 to Station 201+98.

To enable the Railway Company to give service as ordered by the Board, I recommend your approval of this plan—that the switches be of the Tongue Type, and that the Centres between the main line, and passing switches, be not less than thirteen feet (13 ft.), as the Railway Company are operating a number of large cars.

I further recommend that where the distance from point of switch to point of tangent, as shown on the plan, comes opposite to a street intersection, it be changed to one side or the other. if the Town desires it.

Respectfully submitting the above, I am,

Yours very truly,

(Signed) J. F. H. WYSE.

OPINION OF THE BOARD AS TO ADJOURNMENT.

At a sitting held on the 21st inst., in view of the Board of Control having approved of the proposed annexation of North Toronto to the City, this Board concluded to adjourn this application until the 11th of September next, at 2.30 p.m. We directed the Secretary to notify the parties that this matter would be adjourned and that it would be unnecessary for them to bring their witnesses.

The reason the Board has ordered this adjournment is to meet the strongly expressed wish of Counsel for the City and North Toronto that an opportunity should be afforded these Corporations to consummate annexation if at all possible. It was strongly pressed upon the Board that the larger question of annexation was of supreme importance, and that no order should be made in this matter of switches while that was in abeyance, and while it was almost certain that double tracking of the road would follow close upon annexation.

For the last two or three years questions of annexation and traction difficulties have rendered it necessary for the Board, by repeated visits and careful personal investigation, to familiarize ourselves with local conditions, not only in the City and the added territory, but also in North Toronto, and along the whole line of the Toronto and York Radial Railway system north to Lake Simcoe.

From our knowledge of the surroundings and of the growing necessities of this great City, we are of opinion that not to take advantage of the opportunity of annexation now presented would be a misfortune. We have, therefore, determined as a Board to do everything we can in reason to facilitate the carrying out of what we consider is an enlightened and progressive policy, *i.e.,* the annexation of North Toronto to the City and the double tracking of the Metropolitan Division of the Toronto and York Radial Railway.

We do not want to unduly delay Messrs. Waddington and Winter in their application for a better service, nor do we want to hinder or embarrass the Toronto and York Radial Railway by denying them the switches their franchise agreement entitle them to, and which the improved service we ordered render necessary. It appears to us that double tracking can only be procured through annexation, and that such an improvement would be such an advantage and convenience to the public that it is worth waiting until the 11th of September to see if it can be carried out. If the City and North Toronto unfortunately fail to agree on annexation, or if they do agree and double tracking is not provided for without delay, the Board will approve of the requisite switches. It is only fair to the Company in the meantime that we should suspend our Order of the 8th day of March last.

Further application and direction and costs are reserved.

Dated at Toronto this 23rd day of June, 1911.

(Signed) James Leitch,
Chairman.

(Signed) A. B. Ingram,
Vice-Chairman.

(Signed) H. N. Kittson,
Commissioner.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

WADDINGTON AND WINTER

VS.

THE TORONTO AND YORK RADIAL RAILWAY.

Re Switches.

On the 23rd June last this matter was adjourned until the 11th September to give the City of Toronto and the Town of North Toronto an opportunity to carry out the proposed annexation of the two municipalities and secure the double tracking of the Metropolitan Division of the Toronto and York Radial Railway. The Board decided that the double tracking would be such an advantage and convenience to the public that it would be worth while waiting to see if it could not be carried out. The Board stated, in their judgment of that date, that if the City and the Town of North Toronto unfortunately failed to agree on annexation, or if they did agree and double tracking was not provided for without delay, the Board would approve of the requisite number of switches and turnouts rendered necessary by the Board's Order of the 8th of March last for a five minute service on this line of railway. Annexation was defeated and double tracking has not been secured.

The Company have filed their plan showing the location, length and construction of the switches and turnouts that are required to enable them to run the cars necessary to give the service which the Board has ordered and now ask for our approval of it.

The evidence and our Engineer's report are decisive in support of the approval of the plan and we accordingly approve. Mr. Drayton and Mr. Hellmuth addressed very forceful arguments to the Board in support of their contention, that under the agreements and legislation we have no power or authority to approve of a plan that alters and enlarges the existing switches and turnouts, even if such alterations and enlargements are necessary to enable the Company to give the service ordered by the Board. Mr. Drayton urged that the Board were by law required to restrict the switches and turnouts to the Company's requirements for a passenger service and for freight of a limited character. We do not subscribe to their contentions. To do so would be to make the operation of this railway impossible and render a difficult situation, which we are endeavoring to remedy, more complicated and inconvenient to the public. It must be borne in mind that this Railway is a public utility. That the Company are common carriers. They owe a duty to the public. The complainants, as part of the public, are asserting their right to a better service, and it is our duty, as a Board having regard to all the circumstances, to make such order as to it may seem reasonable and expedient, and which the law will allow us to make in the public interest.

Mr. Gibson, Counsel for North Toronto, at the close of his argument, made a sensible suggestion that the Company and the Town should, if possible, agree upon the double tracking of the road.

A reference to the Board's opinions in other matters connected with this Railway and to the report of our Engineer, and to the opinions of every Engineer, who has spoken upon the subject, makes it clear that double tracking is the solution of the difficulties between the Town and the Company. The parties should endea-

vor to settle this matter, the Company not taking their pound of flesh from the Town, nor the Town squeezing the last dollar out of the Company. Mr. Gibson suggested that this Board should help in securing a settlement.

If the Board can be of any assistance to the parties in arriving at a settlement, we shall be glad to do anything reasonable that lies in our power. Mr. Wilson, in answer to the Chairman, stated that some of the switches are 11 feet centres and some 13. He says that all the new switches shown on the plan, are to be put in at 13 feet centres. Mr. Wyse, the Board's Engineer, will see that the switches are properly constructed, and that the Company pave the highway, in accordance with the contract.

We make no Order for costs, except that the Company shall pay $20 for a stamp on the formal Order and our Engineer's fees to be fixed by the Board. Further consideration and direction reserved until the questions of law raised by Counsel, are settled.

Dated this Second day of October, 1911.

(Signed) JAMES LEITCH,
Chairman.

(Seal)

THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

WADDINGTON AND WINTER

vs.

THE TORONTO AND YORK RADIAL RAILWAY.

Re Switches.

This Application was launched by Herbert Waddington, of the Town of North Toronto, and Herbert Winter, of the City of Toronto, on the 8th September, 1910. It was set out in part in the said Application that the Toronto and York Radial Railway Company, in the operation of their Railway, were operating the same in an inefficient and unsatisfactory manner, and to the detriment of the public and the applicants, first, in that the cars were overcrowded and that there was insufficient accommodation for the passenger traffic, and, second, that the services were insufficient by reason of very serious delays which occurred in the passing of cars on switches and the moving of freight on the road of the Company.

This Application was not supported by any petition from the ratepayers of the Municipality of North Toronto; on the contrary the Municipalities of the City of Toronto and the Town of North Toronto strenuously opposed the same. The evidence submitted to the Board from time to time by the applicants, the report of the Board's Engineer, and a personal inspection of the Railway made by all the Members of the Board established to the Board's satisfaction that the service was congested and inadequate. It made it clear that some means should be found to better the service.

In pursuance of that view, an Order was made by the Board on the 8th day of March (which was subsequently suspended pending the final disposition of this application) which required the Company to give an improved service. In pur-

suance of that Order, the Company have now filed Plans proposing to extend the existing switches and to introduce new switches. These Plans show that whereas the existing switches or turnouts total in length 2,241 ft. 5 in., the Company now propose to lengthen the same by 5,764 ft. 5 in., this making, when complete, a total length of switches of 8,006 ft. The Company allege and their allegation is sustained by the evidence of their witness, that they require the full switching facilities set out in the Plans in order to carry out the improved service ordered by the Board.

On the contrary, the evidence as a whole shows that the present switches, with an additional switch of ordinary length between Bedford and York Mills should materially improve the present congested condition, if the through cars are not given right of way over local cars on the local Division.

Despite the evidence put in by the Company, we cannot believe that a line of single track of only 20,375 ft. in length (less than four miles) should require turnouts of 8,006 ft. in length unless they are really intended to serve the purpose of a double track.

The Company from time to time, as the result of negotiations with the Municipality, have been granted added privileges to the rights granted in the agreement with North Toronto in the form of wider switching rights, it appears to us that the proper course for the Company to follow in this case is to pursue the same line of procedure that they have followed in the past. If they want their franchise still further widened, they should apply to the Municipality and not to the Board for relief. The Board have already decided that they have no power to order the double tracking of the road, and we are of opinion that if the proposed abnormal extensions to the turnouts were constructed, it would practically amount to double tracking the road about forty per cent. of its total length, and it would appear that the Company would be thus obtaining by indirect means, what they are plainly debarred from obtaining under the terms of their franchise without the consent of the Municipalities.

A difficult situation is thus created. Increased facilities are needed. The Company declare that they cannot comply with the Order of the Board unless they obtain increased switching facilities, which cannot be provided without occupying a further considerable portion of the highway. The Town of North Toronto and the City of Toronto are objecting to the Plans being passed on the ground that they object to dedicating so large an additional part of their highway for the purposes stated. The Board do not appear to have any authority to widen the terms of the franchise. The question is, what is to be done?

The rights of the travelling public are entitled to consideration, but if the Municipalities of North Toronto and the City of Toronto refuse to give any further part of their highway for the use of the Railway Company, the public must put up with the resulting inconvenience and discomfort until it becomes so acute that public opinion will exert pressure upon the Councils of the Municipalities and bring about negotiations between the parties.

We are of opinion that the Plans should not be approved: that the matter should stand until North Toronto is annexed to the City of Toronto, when negotiations should be opened, looking to the solution of this problem in a radical and permanent manner. At best the increased switching privileges asked for as set out in the Plans would only be a temporary expedient—would not be a permanent remedy—the snake would be only scotched, not killed.

While we are not called upon to do anything more than to pass or reject the Plans, the situation is one of such great difficulty and such inconvenience to the

public that it may not be out of place to suggest what, in our opinion, is the proper solution of this difficult situation. It is, in our opinion, to double track the highway for passenger traffic only and to provide a private right of way for the large and ever-increasing freight traffic. It appears to us intolerable that it should be contemplated that a highway, the chief Northern artery into the City of Toronto, along which is being borne a large and ever-increasing vehicular and other public traffic, should be transformed practically into a right of way for a large passenger and railway freight service.

The question narrows down to this, whether the public highway should be subordinated to the interests of the Company or whether the Municipalities should dominate and control their own highway. We are of opinion that this is a matter for the Municipalities to decide, and that we have no authority to re-make or to vary the existing agreements between the Municipalities and the Railway Company.

(Signed) A. B. Ingram,
Vice-Chairman.
(Signed) H. N. Kittson,
Member.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

Monday, the Second Day of October, A.D. 1911.

Between

HERBERT WADDINGTON, of the Town of North Toronto, in the County of York, and HERBERT N. WINTER, of the City of Toronto,

Applicants,

—and—

THE TORONTO AND YORK RADIAL RAILWAY COMPANY, METROPOLITAN DIVISION, and THE CORPORATION OF THE CITY OF TORONTO, THE TOWN OF NORTH TORONTO, and THE TOWNSHIP OF YORK, made parties by the Order of the Board, dated the 19th day of September, 1910,

Respondents.

Upon the Application of the Respondent, the Toronto and York Radial Railway Company, made to the Board on the 15th day of June, 1911, for the approval of its plans for switches and turnouts, submitted pursuant to the Order of the Board, dated the 8th day of March, 1911, the said Application having been adjourned from time to time by the Respondents, other than the Railway Company, and having come on for final hearing on the 29th day of September, 1911; upon hearing the evidence adduced on behalf of the parties, and upon reading the Report of the Board's Engineer, dated 30th September, 1911; and upon hearing Counsel for the Applicants and Respondents, respectively, the Board was pleased to direct that the Application should stand over for Judgment, and the same coming on on this day for Judgment:

1. It is declared that the Respondent, the Toronto and York Radial Railway Company, has the right under the Agreement, dated the 6th day of April, 1894, made between the Municipal Corporation of the County of York and the Metropolitan Street Railway Co., to construct, put in and maintain such switches and turnouts as may from time to time be found to be necessary for the operating of the Company's line of railway on Yonge Street.

2. And it is further declared that this Board has the right and power under the legislation of the Province of Ontario, relating to it, to order the said Respondent, the Toronto and York Radial Railway Company, to construct and maintain such switches and turnouts as may be necessary for their passenger service and such freight (except explosives) as may be presented to them for carriage as common carriers.

3. And the said Respondent, the Toronto and York Radial Railway Company, having submitted plans showing switches and turnouts, which are necessary to enable the said Respondent to comply with the Order for a better service made by this Board, dated the 8th day of March, 1911;

4. It is therefore ordered that the said Plans for switches and turnouts submitted by the Respondent, the Toronto and York Radial Railway Company, be and they are hereby approved.

5. And it is further ordered that the said switches and turnouts shall be constructed by the Respondent, the Toronto and York Radial Railway Company, under the approval of and subject to the satisfaction of Mr. John F. H. Wyse, the Board's Engineer.

6. And it is further ordered that the City of Toronto and the Town of North Toronto do pay to the Respondent, the Toronto and York Radial Railway Company, their costs of witnesses due to the adjournment of the 11th September, 1911, but doth make no further Order as to the costs except that the Railway Company shall pay $20.00 for stamps upon this Order, and the fees of the Board's Engineer to be fixed by the Board.

7. And it is further ordered that further directions, if any, be reserved to be disposed of hereafter by the Board.

(Signed) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

Procedure File 811.

Application by Village of Brussels (The Brussels, Morris and Grey Telephone System), under 10 Edward VII., C. 84, Sec. 9, for intercommunication, etc., with Township of McKillop's Telephone System.

Jan. 20. Board appointed Feb. 7th, 2.30 p.m., for hearing herein, at its Chambers. Hearing subsequently adjourned to 24th February, 1911.

Feb. 24. Hearing adjourned, sine die; Board's expert to investigate and report to Board.

Mar. 9. Expert's Report filed.

Mar. 10. Order.

April 10. Board appoints 25th inst., at 2.30 p.m., to hear Respondent's Application to have Order varied or rescinded.

April 12. Board changes Appointment to 28th inst. at 2.30 p.m.

April 28. Hearing of Respondent's Application, pursuant to appointment. Judgment reserved.

May 5. Judgment delivered dismissing Respondent's Application to have original Judgment herein rescinded or varied. Township of McKillop to pay $10.00 for Law Stamps on Order.

May 10. Formal Order issued and duplicate original despatched to each party.

June 21. Notice of Application for leave to Appeal received (by letter).

July 18. Notice of Application for leave to Appeal filed.

Oct. 13. Notice of Appeal and Order allowing Application filed.

FRIDAY, the Tenth Day of March, A.D. 1911.

Upon the Application of the said Applicants, and upon hearing what was alleged by Counsel for the Applicants and Respondents, and for the Bell Telephone Company of Canada, and the Board having referred this application for consideration and report to its Expert, upon consideration of the said Expert's Report,

The Board, under and in pursuance of section 9 of "The Ontario Telephone Act, 1910," orders connection, inter-communication, joint operation, reciprocal use and transmission of business beween the Applicant's and Respondent's Telephone Systems or Lines.

The Board further orders and directs the Applicants to construct, build and maintain a trunk telephone line from their Switch-board in their Central Office, in the Village of Brussels, to a point on the gravel road half-way between the Village of Brussels and the Town of Seaforth.

The Board further orders that the Applicants shall bear all the cost of building, constructing and maintaining the said trunk line and of equipping and operating the Switch-board in the Central Office in the said Village of Brussels, and shall allow the use of the same and of all their lines to the Respondents, or any of them, on the basis of a charge of five cents for each call or connection.

And it is further ordered that the Respondents shall build, install, maintain and operate a switch-board in or adjacent to the Town of Seaforth, and construct, build and maintain a trunk telephone line therefrom to the above-mentioned point on the gravel road, half-way between the Town of Seaforth and the Village of Brussels, being the point up to which the said Applicants have been hereinbefore directed to construct their line as aforesaid.

And it is further ordered that the Respondents shall bear and pay all the cost of building, constructing and maintaining the said trunk line, and of equipping and operating the said Switch-board in a Central Office in, or adjacent to, the said Town of Seaforth, and shall allow the use of the same and of all their lines to the Applicants, or any of them, on the basis of a charge of five cents for each call or connection.

And it is further ordered that, should any person who is not a subscriber to either the system of the Applicants or the Respondents, desire to avail themselves of the use of the said switch-board and lines, or any of them, then that a charge of twenty cents shall be made and collected therefor, together with messenger service, if any, which sum, or sums, shall be paid into the office from which the call originated, and that the said charge of twenty cents, exclusive of messenger, shall form a common fund, and be divided monthly between the Applicants and the Respondents, equally, share and share alike.

And it is ordered that the said switch-boards and trunk line shall be built, constructed and equipped, and the connection between the telephone systems and lines of the Applicants and Respondents shall be made and completed, all within the space of two months from the date of this Order.

And it is further ordered that the terms of this Order for connection, intercommunication, joint operation, reciprocal use and transmission of business between the systems of the Applicants and Respondents may be superseded with the approval of this Board by a mutual agreement in writing to be made by and between the Applicants and Respondents.

The Board makes no order as to costs, except that the Applicants and Respondents shall pay $10.00, being $5.00 each for the Stamps on this Order, and the Expert's fee to be taxed and fixed by the Board.

(Signed) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

Friday, the Fifth Day of May, 1911.

The application of the above respondents to set aside or vary the Order made herein on Friday, the 10th day of March, A.D. 1911, having been heard by the Board on the 28th day of April last in the presence of Counsel for both parties, and upon hearing the evidence adduced, and the Board having reserved Judgment now given judgment herein as follows:—

It is ordered that the application of the Respondents to have the said Order of the Board, bearing date the 10th day of March, A.D. 1911, varied or rescinded, be and the same is hereby dismissed.

And the Board makes no Order as to costs, except that the Respondents shall pay the sum of $10.00 for Law Stamps on this Order.

(Signed) James Leitch,
Chairman of The Ontario Railway and Municipal Board.

Procedure File 831.

Between:—

The Grand Trunk Pacific Elevator Co., Ltd.,

Appellant,

—and—

The Corporation of the City of Fort William,

Respondent.

(Assessment Appeal.)

Feb. 1. Board fixes March 1st, 1911, at 2.30 p.m., at its Chambers, for hearing.

Mar. 1. Hearing. Judgment reserved.

Mar. 14. Judgment delivered.

Opinion of the Board.

These matters are appeals to the Board from the decision of the Court of Revision of the City of Fort William in the matter of the assessment of the elevator site and lands made against these elevator companies, under notice of assess-

ment for 1911, delivered on the 15th day of October, 1910. As a matter of convenience, with the consent of all parties, the Board tried these appeals together.

On the 13th day of May, 1905, the Corporation of the Town of Fort William passed a By-law No. 385, wherein it was declared that the Corporation of the Town of Fort William deemed it desirable and to the best interests of the Town that the agreement, thereinafter set forth as Schedule A, should be made and entered into with the Grand Trunk Pacific Railway Company. This By-law and agreement were validated by Ontario Statutes, 1905, 5 Edward VII., Cap. 48.

Under and by the Act and agreement, the Company were to acquire 1,600 acres of land, forming part of the Fort William Indian Mission Reserve, and were to erect and maintain thereon its principal Lake Superior terminals, works and head offices of the engineering, construction and operating staff in connection with and appertaining to the Lake Superior Branch of the said Railway.

By section 7 of the agreement the Municipal Corporation of Fort William, amongst other things, agreed to grant the Company exemption from all municipal rates, taxes and assessments (excluding school taxes) on all lands, buildings, structures and property acquired and held for railway purposes, for a term of 15 years, from the 1st day of May, 1905. The City of Fort William does not contend that the Grand Trunk Pacific failed to carry out their part of the agreement. The fact is that the City of Fort William got all they bargained for. Part of the Company's terminals necessarily consist of buildings and structures commonly known as elevators, and 11.33 acres, part of the 1,600 acres, composing part of the Fort William Indian Mission Reserve, is occupied as a site for the elevators and is the land the assessment of which is appealed against.

On the 5th of June, 1909, the Grand Trunk Pacific Railway Company conveyed to the Grand Trunk Pacific Terminal Elevator Company the said 11.33 acres, and on the 15th of November, 1909, the Grand Trunk Pacific Terminal Elevator Company leased the said 11.33 acres to the Grand Trunk Pacific Elevator Company, Limited.

From the documentary and *viva voce* evidence, the Board find as a fact that these Companies were incorporated, and the said lands vested in them by the Grand Trunk Pacific Railway Company, for the purpose of more conveniently managing their railway and terminal business, and to enable them to raise money for the construction of terminal elevators.

The Act incorporating the Grand Trunk Pacific Railway Company, Statutes of Canada, 1903, 3 Edward VII., Cap. 122, sec. 16, gives the Company the right to purchase, acquire, lease or otherwise hold, either in the name of the Company, or in the name of a trustee or trustees, such lands, water lots, wharves, warehouses, elevators, etc., as it finds necessary and convenient for its purposes.

The Company are merely exercising their statutory rights. Their domestic arrangements make no difference to Fort William. The Company's works, terminals, and terminal elevators have been constructed and are being operated and maintained on part of the 1,600 acres, part of the Indian Mission Reserve, which, by the Statutes of Ontario, 1905, 5 Edward VII., was incorporated in and now forms part of the City of Fort William. The Board cannot see that it makes any difference to Fort William what means the Company have adopted to procure the construction of their terminals and terminal elevators, so long as Fort William gets what it bargained for.

The Board thinks that it would be unfair, in face of the agreement contained in Schedule A to the Ontario Act of 1905, to permit the lands in question and the

buildings and structures thereon, no matter what they may be called, and which are held and used for railway purposes, to be taxed.

In reference to business assessment, the Board is of opinion that this railway's terminal elevators or warehouses cannot be assessed for business assessment

Section 10 of The Ontario Assessment Act, 1904, 4 Edward VII., Cap. 23, section 10, subsection 1, reads as follows:—

"Irrespective of any assessment of land under this Act, every person occupying or using land in the municipality for the purpose of any business mentioned or described in this section shall be assessed for a sum to be called 'Business Assessment' to be computed by reference to the assessed value of the land so occupied or used by him, as follows:—"

It will be noted that the land must be used "for the purpose of any business mentioned or described in this section." Neither in that section nor in any amendment to The Assessment Act is the business of an elevator or warehouse man mentioned or described. It is contended that the amendment made to clause (*f*) of subsection 1 of section 10 of The Assessment Act, contained in the Act of 1906, 6 Edward VII., Cap. 36, sec. 2, by inserting the words "or any other business" after the words "financial or commercial business," is authority for levying the business assessment against the terminal elevators in question in these matters.

The Board does not subscribe to that contention. If the Legislature intended that the business of an elevator keeper or warehouse man should be liable for a business assessment it is strange that the business of a distiller and a brewer and a wholesale merchant, and the hundred and one other businesses, should be mentioned in the Act and this omitted.

The amendment to sec. 44 of The Assessment Act, made by sec. 13 of the Act of 1906, Cap. 36, which applies to the assessment of railway property, while it exempts certain railway property from taxation, mentions warehouses and elevators and excludes them from such exemption, and leaves them liable to assessment. Why was the business assessment connected with elevators overlooked? We think it was intentional on the part of the Legislature.

The Board allows these appeals, but makes no Order as to costs, except that the City of Fort William shall pay $20.00, $10.00 in each case, for stamps on final Order.

Dated at Toronto, the 11th day of March, 1911.

(Signed) James Leitch,
Chairman.
(Signed) A. B. Ingram,
Vice-Chairman
(Signed) H. N. Kittson,
Commissioner.

Procedure File 832.

Between:—

The Grand Trunk Pacific Terminal Elevator Co., Limited,
Appellant,

—and—

The Corporation of the City of Fort William,
Respondent.

(Assessment Appeal.)

Feb. 1. Board fixes March 1st, 1911, at 2.30 p.m., at its Chambers, for the hearing.

Mar. 1. Hearing. This case tried with P. F. 831. (The G. T. P. Elevator Co.'s appeal). Judgment reserved.

Mar. 14. Judgment delivered.
(For opinion of the Board, see P. F. 831.)

PROCEDURE FILE 834.

Canadian Northern Railway Co., vs. Fort William.

(Assessment Appeal.)

Feb. 1. Board appoints Wednesday, Mar. 1st, 1911, at 2.30 p.m., at its Chambers, for hearing.

Feb. 9. Notice received from Canadian Northern Railway Co. that this appeal dropped.

TORONTO VS. TORONTO RAILWAY COMPANY.

(Re P. A. Y. E. Cars.)

PROCEDURE FILE 842.

Jan. 19. Hearing continued pursuant to adjournment of Dec. 19th, 1910. No evidence taken. Each member of Board delivers separate Judgment.
Feb. 6. Formal Order settled in presence of Counsel for both parties.

TORONTO, Ont., January 16th, 1911.

To The Ontario Railway and Municipal Board,

JAMES LEITCH, ESQ., Chairman.

Gentlemen,—Complying with your instructions to inspect the operation of the P. A. Y. E. Systems in other cities, and to report to your body the best method to adopt in the City of Toronto, taking into consideration the conditions which exist in Toronto, and the equipment in use by the Toronto Railway Company.

We beg to state that accompanied by Mr. A. B. Ingram, Vice-Chairman of your Board, we visited the Cities of Cleveland, Buffalo, Rochester, Montreal and Ottawa.

From our observations we recommend as follows:—

1st. Vestibules. That rear vestibules on all cars intended for the collection of fares by the P. A. Y. E. System should be enclosed, except over the steps.

2nd. Platforms. That the length of the rear platform should be governed by the style of the car, and its seating capacity, *i.e.*,

A Cars. 18′ to 22′ bodies. Car bodies 18 feet to 22 feet in length (both sizes inclusive) should have a minimum rear platform length of fifty-six (56) inches clear inside, measured longitudinally with a minimum step length of thirty-nine (39) inches.

B Cars. Over 22′ and under 28′ bodies. Cars having bodies over twenty-two feet and under twenty-eight feet in length should have a minimum rear platform of sixty-two inches clear inside, measured longitudinally, with a minimum step length of forty-four (44) inches.

C Cars. 28′ to 32′ bodies. Cars having bodies twenty-eight (28) feet to thirty-two (32) feet in length (both sizes inclusive), should have a minimum length of rear platform of sixty-eight (68) inches clear inside, measured longitudinally, with a minimum step length of forty-eight (48) inches.

D Cars. Over 32′ bodies. Cars having bodies over thirty-two (32) feet in length should have a minimum rear platform of seventy-four (74) inches clear inside, measured longitudinally, with a minimum step length of fifty-four (54) inches.

3rd. Fare Box. That the platform fare box now in use by the Toronto Railway Company, or an approved one of similar design, be used on all cars intended for the collection of fares by the P. A. Y. E. System.

4th. Grab Handles. That an upright be placed near the centre of each step opening extending from the floor to the ceiling, which can be used as a grab handle. The spacing from the car body to be left to the discretion of the Railway Company.

Grab Handle (a).

Grab Handle (b). That the grab railings now in use on the ends of the car be retained in their present location.

Grab Handle (c). That a similar grab railing be placed all around the interior of the rear vestibule.

Grab Handle (d). That at the discretion of the Railway Company a grab railing be put on the fare box.

5th. Rear End Doors. That in all cars intended to be used for the collection of fares by the P. A. Y. E. System, there shall be one door in the rear end bulk head on the devil strip side for entrance and one door on the street side for exit, or in lieu of the two doors there shall be one reasonably large

door on the devil strip side, the minimum width of which should not be less than thirty-six (36) inches.

In the event of two doors being used there shall be a dividing rail to separate the flow of in-going and out-going traffic. From our observations in the City of Toronto the one large door on the devil strip side gives every satisfaction. In fact it has advantages over the two door system in that the conductor is better able to regulate the traffic through it, having only to watch one door instead of having to watch two doors in the other case. An advantage in favor of the single door is that no dividing rail is necessary, thus permitting of quicker loading, and quick loading is an essential in Toronto on account of the extremely large number of cars they have on the short mileage of track. Then the second door offers an inducement to passengers to stay near the back of the car, but from our observations in other cities the two doors are giving equally as good satisfaction as the single door is giving in Toronto, so that, in our opinion, either system will be satisfactory.

And that the present condition of entering cars by rear doors and 6th leaving by front doors, as now in operation, should be continued.

Respectfully submitting the above, we are,

Yours very truly,

(Signed) J. F. H. Wyse.
(Signed) Don. M. Campbell.

Upon the application of the above named Applicants in the presence of the Applicants and Respondents, upon hearing the evidence adduced, upon reading the report of J. F. H. Wise, Esq., Consulting Engineer, and Donald M. Campbell. Esq., Car Builder, dated the 16th day of January, 1911, and upon hearing what was alleged by Counsel for the Applicants and Respondents.

The Board Orders that its sanction of the Respondents' By-law No. 36, respecting Closed Motor and Trailer Cars, be and the same is hereby rescinded.

And the Board further Orders that the Applicants' application for an Order that the Respondents discontinue the use of trailer cars and construct their motor cars with compartments for the use of smokers, be and the same is hereby dismissed.

And the Board further Orders that the question of costs, and the fees and expenses of the said J. F. H. Wyse and Donald M. Campbell be and the same are hereby reserved.

(Signed) James Leitch,
Chairman of The Ontario Railway and Municipal Board.

(Seal)

Opinion of the Board.

This is an application to rescind By-law Number 36 of the Toronto Railway Company respecting Closed Motor and Trailer Cars, which was sanctioned by the Board on the 2nd of December, 1910, or in the alternative, to suspend the opera-

tion of the said By-law until such time as the Toronto Railway Company put proper pay-as-you-enter cars into service, and for an order directing the Company to supply such cars of such character and dimensions, and within such time as the Board may order. The Applicants also ask for an order directing the Toronto Railway Company to discontinue the use of trailers on their street railway system within six months, and requiring the Company to construct on its cars compartments for the use of smokers.

This matter first came before the Board on the 9th day of December, and was adjourned until Monday, the 19th of December. After hearing the evidence of several witnesses the Board further adjourned the hearing for one month from the 19th of December, in order that the Board's experts might have an opportunity of examining pay-as-you-enter cars in cities in the United States and Canada, and observe their operation.

The Board delegated one of their Engineers, Mr. J. F. H. Wyse and Mr. Donald M. Campbell, the Manager and Car Constructor of the Preston Car and Coach Company, to inspect the pay-as-you-enter cars in operation in other cities of Canada and in several cities in the United States, and to report to the Board their recommendations as to the changes and alterations that the Company should make in their cars, and the equipment they would have to provide in order to instal an up-to-date pay-as-you-enter system.

The experts, accompanied by Mr. Ingram, the Vice-Chairman, visited the cities of Cleveland, Buffalo, Rochester, Montreal and Ottawa, and after their return to Toronto made a careful inspection and investigation of the pay-as-you-enter and other cars now in operation in Toronto. The experts have advised the Board that there is no standard pay-as-you-enter car suitable for all places and all conditions; that the style of car adopted in different cities depends upon local requirements and the opinion and inventive genius of the car constructor; and the system being comparatively new is in a transition state and is being modified and improved from time to time, as experience renders it necessary or advisable. There is one thing certain, however, and that is that the pay-as-you-enter system is a vast improvement upon the old method of collecting fares by passing around the box.

The Company's By-law No. 36, which the Board sanctioned, is necessary and proper for the operation of a modern pay-as-you-enter system. Had it not been so designed, and had not the Company a considerable number of pay-as-you-enter cars in commission, the Board would not have sanctioned it. Now that the Company have determined to instal the new system and to adopt a modern method of collecting fares, the first question which lies at the threshold of this application is as to whether or not the Board have power to make an order directing the Company to make their pay-as-you-enter cars of such character and dimensions as to the Board may seem proper.

Section 17 of the Act incorporating the Toronto Street Railway, 55 Victoria, Chap. 99, provides that the fare of every passenger shall be due and payable on entering the car, and any person refusing to pay the fare when demanded, and refusing to quit the car when requested, shall be liable to a fine of $10 with costs.

Section 116 of the Ontario Railway Act, 1906, provides that the fare or toll shall be due and payable by every passenger on entering the car, or other conveyance, and every passenger who refuses to pay his fare may, by the conductor of the train and the train servants of the company, be expelled from and put off the car, with his baggage, at any usual stopping place, or near any dwelling house, the con-

ductor first stopping the train and using no unnecessary force. By subsection 2 this section is made expressly to apply to street railways.

By both of these Acts the fare is due and payable by the passenger on entering the car, and he is liable under the first mentioned Act if he refuses to pay his fare or to quit the car when requested, to a fine of $10, and under the second Act is liable to be expelled from the car. Neither of these Acts fix the method by which the fare is to be demanded and collected. Heretofore the passenger has been presented with a fare-box after entering the body of the car. The Company want to change this system and substitute for it a stationary pay-as-you-enter box, fixed in a rear end vestibule, in which the passenger will be required to deposit the fare before he enters the seated part of the car.

Now that the Company are departing from their former method of collecting fares, have passed their By-law No. 36, and are adopting a different practice and require different equipment and appliances in order to make the change of system workable, the Board are of opinion that, under and by virtue of the Ontario Railway and Municipal Board Amendment Act, 1910, they have power and authority to determine the proper and adequate practice, equipment and appliances, necessary for the pay-as-you-enter system.

The experts, complying with the Board's instructions to inspect the cars in use and to observe the operation of the pay-as-you-enter systems in other cities, and after a careful and exhaustive examination of all types of Toronto cars, both those that have been changed and those that have not been changed, and after taking into consideration the traffic conditions that exist in Toronto, have made the following recommendations:

1. That rear vestibules on all cars intended for the collection of fares by the P. A. Y. E. system should be enclosed, except over the steps.

2. That the length of the rear platform should be governed by the style of car, and its seating capacity, *i.e.*

(*a*) Car bodies 18 feet to 22 feet in length (both sizes inclusive) should have a minimum rear platform length of 56 inches clear inside, measured longitudinally, with a minimum step length of 39 inches.

(*b*) Cars having bodies over 22 feet and under 28 feet in length should have a minimum rear platform of 62 inches clear inside, measured longitudinally, with a minimum step length of 44 inches.

(*c*) Cars having bodies 28 feet to 32 feet in length (both sizes inclusive) should have a minimum length of rear platform of 68 inches clear inside, measured longitudinally, with a minimum step length of 48 inches.

(*d*) Cars having bodies over 32 feet in length should have a minimum rear platform of 74 inches, clear inside, measured longitudinally, with a minimum step length of 54 inches.

3. That the platform fare-box now in use by the Toronto Railway Company, or an approved one of similar design, be used on all cars intended for the collection of fares by the P. A. Y. E. system.

4. That an upright be placed near the centre of each step opening extending from the floor to the ceiling, which can be used as a grab handle. The spacing from the car body to be left to the discretion of the Railway Company.

That the grab railings now in use on the ends of the car be retained in their present location.

That a similar grab railing be placed all around the interior of the rear vestibule.

That at the discretion of the Railway Company a grab railing be put on the fare box.

5. That in all cars intended to be used for the collection of fares by the P. A. Y. E. system, there shall be one door in the rear end bulk head on the devil strip side for entrance and one door on the street side for exit, or in lieu of the two doors there shall be one reasonably large door on the devil strip side, the minimum width of which should not be less than 36 inches.

In the event of two doors being used there shall be a dividing rail to separate the flow of in-going and out-going traffic.

The experts report that one large door on the devil strip side has advantages over the two-door system, but as the two-door system has given good satisfaction in other cities, they give it as their opinion that either system would be satisfactory.

They also recommend that the system now in-operation of entering cars by the rear door and leaving by the front should be continued.

The Board adopts the said recommendations of the said experts, and determines that the same are the reasonable, safe, proper and adequate regulations, practices, equipment and service for a pay-as-you-enter system, and for the cars of, and for the transportation of passengers by, the Toronto Railway Company.

The Board are of opinion that the Company have the right to select and adopt either a single door or two doors between the rear vestibule and the body of each motor car. Where the opinion of the experts is equally divided as to whether one door or two doors is the better plan, the Company has the right to select whichever plan they choose.

The Board are of opinion that all the Company's motor cars should be changed into pay-as-you-enter cars with all reasonable dispatch: that each car should be put in commission as soon as finished; that the whole system should be completed in eighteen months from this date; and that such changes and equipment should be subject to the direction and inspection of one of the Board's Engineers. The sketch hereto annexed shows the arrangement of the rear and vestibule. The pay-as-you-enter system will not apply to cars when they are changed into what are known as summer cars.

The Board further suspends the operation of By-law No. 36, but the same shall automatically take effect upon each motor car of the Toronto Railway system, when and as soon as each car is equipped as aforesaid to the satisfaction of the Board's Engineer.

In view of the congested conditions that exist in Toronto, the Board declines to order the Company to discontinue the use of trailers or to construct its cars with compartments for the use of smokers. To do otherwise, at least until such time as the new lines and cars ordered by the Board in May, 1907, are completed, would only intensify and aggravate the congestion.

In the event of the Board being reversed by the Court of Appeal on any of the questions of law involved in this opinion, the Board reserves further consideration and direction, and the question of costs, and the experts' fees and expenses.

A formal order can issue in terms of this opinion to be settled by the Secretary in case the parties differ.

Dated this 19th day of January, 1911.

(Signed) JAMES LEITCH,
Chairman.

Accompanied by five experts I have investigated the Pay-as-you-enter System in Cleveland, Buffalo, Rochester, Montreal and Ottawa, where traffic conditions are similar to those prevailing here. I find that in all these cities, except Ottawa, the companies have a separate entrance and exit at the rear end of each car on which the Pay-as-you-enter System is used. Ottawa has tried one door at the rear end, but is now constructing all its new cars with separate entrance and exit at the rear end.

In addition to the experts who accompanied me, I have consulted with traffic and car-building experts in all the above mentioned cities and find that, as a matter of practical car-building, the cars of the Toronto Railway Company can be altered by the extension of the platform and putting in or installing a separate entrance and exit at the rear end of each car, and properly stepped and vestibuled.

My investigations have convinced me that, where the Pay-as-you-enter System is in use, a separate entry and exit are necessary at the rear end of each car. If the Toronto Railway Company desire to adopt the Pay-as-you-enter System, they should be directed to install a separate entrance and exit at the rear end of each car, and to supply a proper vestibule, suitably heated, for the adequate protection of the conductor.

Having regard to By-law No. 36, of the Toronto Railway Company, this By-law does not appear to me to be suitable for cars having two rear doors. I think, therefore, that the Company should apply to the Board, on notice to the City, for approval for a new By-law to replace its By-law No. 36.

I regret that my opinion does not agree with that of the Chairman in these particulars, but I cannot arrive at any other conclusion after my personal investigations of the working of the Pay-as-you-enter-System.

(Signed) A. B. Ingram,
Vice-Chairman.

I regret that in this matter my opinion differs in some respects from that of the Chairman of the Board as set forth in the judgment which he has now read. I have had the privilege of consulting with the Vice-Chairman who, accompanied by a number of experts, visited a number of cities in the United States with a view of investigating the working of the Pay-as-you-enter System in these cities where the conditions were closely similar to those existing in Toronto. These investigations have shown, first, that it is practical to so alter the cars here that the rear platforms can be extended and that a separate entrance and exit can be installed, that is to say, that two doors can be used at the rear end of the car.

In the cities of Cleveland, Buffalo, Rochester and Montreal there have been installed and there are now in use, cars that have two doors at the rear end for the Pay-as-you-enter System, and the Ottawa Street Railway Company, having previously operated their cars with one large door in the rear, we are now profiting by their experience and are constructing all the news cars with two doors at the rear end.

I am aware that the altering of the present cars in use by the Toronto Street Railway Company so as to make them up-to-date Pay-as-you-enter cars will involve considerable expense, but, as the Toronto Railway Company has, of its own initiative, applied for leave to use the Pay-as-you-enter System, I am of the opinion that, in the City of Toronto, the practice and system which have been tested and proved by actual experience and trial to be the best, should be adopted.

I concur in the judgment of the Chairman in the main, excepting that, in my opinion, two doors are absolutely necessary at the rear end of the cars if the Pay-as-you-enter System is to be enforced.

I further dissent from the view expressed by the Chairman that the Toronto Railway Company have the right to select and adopt either a single or two-door system at the rear end of each car. The Chairman, in his judgment, sets forth that, under the Act of 1910, the Board has power and authority to determine the proper and adequate practice, equipment and appliances necessary for the Pay-as-you-enter System. In that view the Board have the right to order the installation by the Toronto Railway Company of separate entrances and exits on all cars where the Pay-as-you-enter System is enforced, and I am, therefore, of opinion that this Board should order the Toronto Railway Company, within a reasonable time, to alter their cars so that a separate entrance and exit at the rear end will be installed before the Pay-as-you-enter System can be permitted on such cars.

(Signed) H. N. Kittson,
Commissioner.

Procedure File 845.

Application by City of Toronto, under 6 Edw. VII., Chap. 30, sec. 89, for approval of Plans, &c., of the Harbord Street Bridge.

May 26. Board's Engineer's report on test received.

May 26. Plans approved and certified.

May 25th, 1911.

The Chairman of the Ontario Railway and Municipal Board, Toronto.

Sir,—I have to report that a practical test was made of the Harbord Street reinforced concrete arch this afternoon by the engineers of the city in the presence of Mr. Ingram of your Board and myself. The tests were made as follows:

(*a*) A steam roller of 17½ tons was run from the east end of the bridge towards the centre, meeting one of 13 tons at that point approaching from the west end. There was no deflection noted.

(*b*) The two rollers, the heaviest one leading, following one behind the other from one end of the bridge to the centre, a deflection of .005 ft. or 1-16 inch was noted, probably due to the sinking of the earth fill under the rollers.

(*c*) The two rollers running abreast across the bridge.

The structure was carefully examined for cracks afterwards but none were found. Also no vibration was noted during the passage of the rollers.

The test was in every way satisfactory and I recommend the approval of the plans by your Board.

This report together with that of the theoretical work, made last February, is now submitted to your Board.

I might add that the theoretical deflection at the crown figured 1-16 inch.

Yours truly,

(Signed) H. W. Middlemist.

TORONTO, March 1, 1911.

The Chairman of The Ontario Railway and Municipal Board, Toronto:

SIR,—I have examined the stresses in the Harbord Street reinforced concrete arch as requested by your Board, and beg to report as follows:

This arch has a span of 31 feet clear and is reinforced with two ¾-inch round rods, joined by stirrups as shown on the plan, for each lineal foot of width. There is an earth fill at the crown of 1 foot 10 inches with paving on the top of the fill, and this reduced down to an equivalent in weight of concrete gives a height of 3-30 feet from the introdos of the arch to the top of paving. Working the weights out for one foot of arch in width, from this data I get the curve shown in yellow ink for the dead load only, shown on my diagram attached to this report. I then took an equivalent load of 260 lbs. per lineal foot equivalent to the 40-ton car loading of your specification and that of the City Specification for 1910, which added to the dead load all over the bridge given the curve shown in red on my diagram. The stress on the concrete per square inch at the point of greatest moment is 140 lbs. compression and the tension of one ¾-inch rod is 1,735 lbs. less than 7,040 lbs. which would be the allowable stress at 16,000 lbs. per square inch.

I then took the dead load plus the live load as above, the latter extending over two-thirds of the length of span for which I get the curve shown in blue on my diagram. This gives, for point of maximum moment, 362 lbs. per square inch compression on the concrete and 3,585 lbs. per square inch tension on one ¾-inch rod, less than 7,040 lbs. per square inch; the compressive stress on the other rod being 4,563 lbs.

The loading for the middle third of the arch, that is dead load all over plus live load over the middle third or crown gives 3,584 lbs. tensile stress less than 7,040 lbs. per square inch.

Therefore in theory this arch should stand the loading required.

Yours truly,
(Signed) H. W. MIDDLEMIST.

PROCEDURE FILE 858.

THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK

vs.

JOHN GIBBONS.

(To have the Board fix, under 10 Edw. VII., Chap. 11, the compensation for lands taken by Applicants under 10 Edw. VII., Chap. 21.)

February 8. Reply filed.
April 26. Joinder of Issue filed.
May 16. Application for hearing, 30th inst.
May 30. Hearing. Judgment reserved.
May 31. Settlement effected.
June 29. Order.

In the matter of expropriation of land taken for the Esplanade in pursuance of the Queen Victoria Niagara Falls Park Act, 10 Edward VII., chapter 21, and in the manner provided thereby and by the Ontario Public Works Act, 10 Edw. VII., ch. 11.

In the matter of John G. Gibbons, owner of part of lot No. 17, Cross Concession, Township of Willoughby, County of Welland.

Upon the application of the above-named Applicants in the presence of the Applicants and Respondent, upon hearing the evidence adduced on behalf of the Applicants and Respondent, and upon hearing Counsel for the Applicants and Respondent, the Board orders and allows the sum of seven hundred and four dollars as the compensation to which the Respondent is entitled for the land entered upon and taken by the Commissioners or injuriously affected by the exercise of any of their powers beyond any advantage which the Respondent may derive from the contemplated work. The Board makes no order as to costs except that the Applicants shall pay six dollars for the law stamp on this final order.

Dated at Toronto the 29th day of June, A.D. 1911.

(Sgd.) A. B. Ingram,

(Seal.)

Vice-Chairman.

Procedure File, 859.

The Commissioners for the Queen Victoria Niagara Falls Park

vs.

Martin Wale.

(To have the Board fix, under 10 Edw. VII., Chap. 11, the compensation for Respondent's lands expropriated by Applicants under 10 Edw. VII., Chap. 21.)

February 8. Reply filed.

February 21. Joinder of Issue filed.

May 16. Appointment for Hearing, 31st inst.

May 30. Hearing adjourned one day.

May 31. Hearing. Settlement effected.

June 29. Order.

In the matter of Expropriation of land taken for the Esplanade in pursuance of the Queen Victoria Niagara Falls Park Act, 10 Edward VII., chapter 21, and in the manner provided thereby and by the Ontario Public Works Act, 10 Edward VII., ch. 11.

In the matter of Martin Wale, owner of part of lot No. 17, Cross Concession, Township of Willoughby, County of Welland.

Upon the application of the above-named Applicants in the presence of the Applicants and Respondent upon hearing the evidence adduced on behalf of the Applicants and Respondent and upon hearing Counsel for the Applicants and Respondent, the Board orders and allows the sum of nine hundred dollars as the compensation to which the Respondent is entitled for the land entered upon and taken by the Commissioners or injuriously affected by the exercise of any of their powers beyond any advantage which the Respondent may derive from the contem-

plated work. The Board makes no order as to costs except that the Applicants shall pay six dollars for the law stamp on this final order.

Dated at Toronto the 29th day of June, A.D. 1911.

(Sgd.) A. B. INGRAM,

(Seal.)

Vice-Chairman.

PROCEDURE FILE 860.

THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK

vs.

JOHN BAKER.

(To have the Board fix, under 10 Edw. VII., Chap. 11, the compensation for Respondent's lands expropriated by Applicants under 10 Edw. VII., Chap. 21.)

February 8. Reply filed.

February 21. Joinder of Issue filed.

May 16. Appointment for hearing, 30th inst.

May 30. Hearing adjourned one day.

May 31. Hearing. Settlement effected.

June 29. Order.

In the matter of expropriation of land taken for the Esplanade in pursuance of the Queen Victoria Niagara Falls Park Act, 10 Edw. VII., chapter 21, and in the manner provided thereby and by the Ontario Public Works Act, 10 Edward VII., ch. 11.

In the matter of John Baker, owner of lot 16, Cross Concession, Township of Willoughby, County of Welland.

Upon the application of the above-named Applicants in the presence of the Applicants and Respondent, upon hearing the evidence adduced on behalf of the Applicants and Respondent and upon hearing Counsel for the Applicants and Respondent, the Board orders and allows the sum of one thousand one hundred and sixty-one dollars, the Applicants at their expense to move the Respondent's house back that it may be the same distance west from the west limit of the Esplanade that it was from the west limit of the present travelled road and put the same in good, first-class condition with respect to cellar, foundations, gradings, drainage, repair what may happen to the house in the moving, as compensation to which the Respondent is entitled for the land entered upon and taken by the Commissioners or injuriously affected by the exercise of any of their powers beyond any advantage which the Respondent may derive from the contemplated work. The Board makes no order as to costs except that the Applicants shall pay six dollars for the law stamp on this final order.

Dated at Toronto the 29th day of June, A.D. 1911.

(Sgd.) A. B. INGRAM,

Vice-Chairman.

(Seal.)

PROCEDURE FILE 861.

THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK

vs.

TOM STICKLES.

(To have the Board fix, under 10 Edw. VII., Chap. 11, the compensation for Respondent's lands expropriated by Applicants under 10 Edw. VII., Chap. 21.)

Feb. 8. Reply filed.

Feb. 21. Joinder of Issue filed.

May 16. Appointment for Hearing, 30th inst.

May 30. Hearing adjourned one day.

May 31. Hearing. Settlement effected.

June 29. Order.

In the matter of expropriation of land taken for the Esplanade in pursuance of the Queen Victoria Niagara Falls Park Act, 10 Edward VII., Chapter 21, and in the manner provided thereby and by the Ontario Public Works Act, 10 Edward VII., Chapter 11.

In the matter of Tom Stickles, owner of part of Lot No. 15, Concession 5, Township of Bertie, County of Welland.

Upon the application of the above-named Applicants, in the presence of the Applicants and Respondent, upon hearing the evidence adduced on behalf of the Applicants and Respondent, and upon hearing Counsel for the Applicants and Respondent, the Board orders and allows the sum of Two hundred and thirty-two dollars; the Applicants at their expense to move the Respondent's house back, that it may be the same distance west from the west limit of the Esplanade that it is from the west limit of the previous travelled road, and put the same in good first-class condition with respect to cellar, foundations, gradings and repair what may happen to the house in the moving; as the compensation to which the Respondent is entitled for the land entered upon and taken by the Commissioners or injuriously affected by the exercise of any of their powers beyond any advantage which the Respondent may derive from the contemplated work. The Board makes no order as to costs, except that the Applicant shall pay six dollars for the Law Stamp on this final order.

Dated at Toronto the 29th day of June, A.D. 1911.

(Sgd.) A. B. INGRAM,
Vice-Chairman.

(Seal)

PROCEDURE FILE 865.

Application by the Township of Thorold, under 10 Edw. VII., Chap. 87, Sec. 3, for approval of By-law 14, 1910, granting to James Battle, as Trustee, right to operate Power Distribution System.

Jan. 9. Application and material received from Provincial Secretary's Department.

Jan. 9. Order made approving By-law.

Upon the application of the Municipal Corporation of the Township of Thorold, and upon reading the Notice of Application, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law, Number 14, of the Municipal Corporation of the Township of Thorold, intituled "By-law No. 14. A By-law to grant certain rights and privileges to James Battle, as Trustee, to construct, maintain and operate a system of distribution for supplying power for manufacturing and other purposes within the limits of the Municipality of the Township of Thorold, Ontario," be, and the same is hereby approved under in pursuance of Section 3, of Chapter 87, of the Ontario Statutes for 1910, and Clause (*e*) of Section 53 of Chapter 31 of the Ontario Statutes for 1906.

(Signed) JAMES LEITCH,
Chairman.

PROCEDURE FILE 866.

THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK

vs.

JOHN H. ATWOOD.

Application to have the Board fix, under 10 Edw. VII., Chap. 11, the compensation payable for Respondent's land taken under 10 Edw. VII., Chap. 21.

Jan. 13. Application filed.
Feb. 17. Reply filed.
Feb. 21. Joinder of Issue filed.
May 16. Appointment for Hearing, 30th inst.
May 30. Hearing adjourned till to-morrow.
May 31. Hearing. Settlement effected.
June 29. Order.

In the matter of expropriation of land taken for the Esplanade, in pursuance of the Queen Victoria Niagara Falls Park Act, 10 Edward VII., Chapter 21, and in the manner provided thereby and by the Ontario Public Works Act, 10 Edward VII., Ch. 11.

In the matter of John H. Atwood, owner of Lot No. 11, Cross Concession, Township of Willoughby, County of Welland, and Lot No. 10, Cross Concession, Township of Willoughby, County of Welland.

Upon the application of the above-named Applicants, in the presence of the Applicants and Respondent, and upon hearing the evidence adduced on behalf of the Applicants and Respondent, and upon hearing Counsel for the Applicants and Respondent, the Board orders and allows the sum of One thousand three hundred and seventy-four dollars as the compensation to which the Respondent is entitled for the land entered upon and taken by the Commissioners or injuriously affected by the exercise of any of their powers beyond any advantage which the Respondent may derive from the contemplated work. The Board makes no order as to costs, except that the Applicants shall pay six dollars for the law stamp on this final order.

Dated at Toronto the 29th day of June, A.D. 1911.

(Signed) A. B. INGRAM,
Vice-Chairman.

(Seal)

PROCEDURE FILE 867.

Application by the Bell Telephone Company, under 10 Edw. VII., C. 84, for approval of Agreement with the Town of Parry Sound.

1911, Jan. 3. Agreement considered and approved. Order.

Upon the application of The Bell Telephone Company of Canada, Limited, and upon reading a copy of an Order-in-Council approved by His Honour the Administrator of the Government of the Province of Ontario, bearing date the 17th day of December, A.D. 1908, a copy of By-law Number 372 of the Town of Parry Sound, being a By-law to authorize the execution of an agreement between the Bell Telephone Company of Canada, Limited, and the said Town, and the certified copy of the said agreement,

The Board orders that the said agreement, bearing date the 6th day of December, 1910, between the Bell Telephone Company of Canada, Limited, of the First Part, and the Corporation of the Town of Parry Sound, of the Second Part, be and the same is hereby approved.

(Signed) A. B. INGRAM,
Vice-Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 869.

Application by the Bell Telephone Company, under 10 Edw. VII., C. 84, Sec. 10, for approval of Agreement with Alfred Lyons.

Jan. 3. Agreement considered and approved. Order.

Upon the application of The Bell Telephone Company of Canada, Limited, and The Lyons Telephone System, and upon reading the Memorandum of Agreement made the 8th day of December, 1910, by and between the Bell Telephone Company of Canada, Limited, and The Lyons Telephone System, triplicate of which Agreement has been filed in the office of the Board,

The Board orders that the said Agreement (save and except in so far as it concerns or relates to charges, rates, rents or tolls) be, and the same is hereby approved, under and in purusance of Section 10 of "The Ontario Telephone Act, 1910," provided that the Board may at any time hereafter of its own motion, or upon any application or complaint, rescind this Order and withdraw its approval of the above-mentioned Agreement, and require the same to be altered, amended, varied, or otherwise changed or modified, as to the said Board may seem requisite or proper.

(Signed) A. B. INGRAM,
Vice-Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 870.

Application by the Township of Chapleau, under 6 Edw. VII., C. 34, Sec. 21, for approval of Waterworks Extension By-law 26 ($13,659.30).

Jan. 9. Application and material considered. Letter sent asking for further material.

Jan. 25. Further material received and returned for correction.

Feb. 1. Corrected material received, considered and approved. Order.

Upon the application of the above-named Corporation and upon reading the

Notice of Application filed by R. R. McKessock, Esquire, K.C., Solicitor for the Applicant, the verified copy of the said By-law, the affidavits of George B. Nicholson, Reeve, and Thomas J. Godfrey, Clerk of the said Township, and the other material filed,

The Board orders that the said By-law of the Municipal Corporation of the Township of Chapleau, intituled "By-law No. 26. A By-law to provide for the raising of Seven thousand dollars for the purpose of purchasing and erecting an Auxiliary Pumping Plant to be used in connection with the water works system and for extensions to the water mains of the Village of Chapleau, in the Township of Chapleau," be and the same is hereby approved.

(Signed) JAMES LEITCH,
Chairman.

(Seal)

PROCEDURE FILE 871.

Application by the Bell Telephone Company of Canada, Limited, under 10 Edward VII., C. 84, Sec. 10, for approval of an Agreement with the Spring Creek Telephone Company. (Not incorporated.)

Jan. 3. Agreement filed.
Jan. 13. Order.

Upon the application of The Spring Creek Telephone Company and The Bell Telephone Company of Canada, Limited, and upon reading the Memorandum of Agreement, made the 9th day of December, 1910, by and between the Bell Telephone Company of Canada, Limited, and The Spring Creek Telephone Company, triplicate of which Agreement has been filed in the office of the Board,

The Board orders that the said Agreement (save and except in so far as it concerns or relates to charges, rates, rents or tolls) be and the same is hereby approved, under and in pursuance of Section 10 of "The Ontario Telephone Act, 1910, provided that the Board may at any time hereafter of its own motion, or upon any application or complaint, rescind this Order and withdraw its approval of the above-mentioned Agreement, and require the same to be altered, amended, varied or otherwise changed or modified, as to the said Board may seem requisite or proper.

(Signed) A. B. INGRAM,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 872.

Application by the City of Stratford, under 6 Edw. VII., C. 34, Sec. 21, for approval of Electric Light Extension By-law 1753 ($41,610).

Jan. 4. Application and material filed.

Application and material considered: refused, Council not having jurisdiction to pass By-law 1753, changing original By-law which had been passed by the electors.

PROCEDURE FILE 873.

SANDWICH, WINDSOR AND AMHERSTBURG RAILWAY

vs.

CORPORATION OF THE CITY OF WINDSOR.

(For construction of Tax Exemption Agreement.)

Jan. 5. Application filed.
Jan. 14. Hearing fixed for 27th inst., at 2.30 p.m.
Jan. 27. Hearing concluded, judgment reserved.
Feb. 16. Judgment delivered, dismissing appeal.

This is an application by way of Appeal from the Court of Revision of the City of Windsor, and for the construction of an Agreement between the Company and the City, bearing date the 28th day of July, 1902, for commutation and exemption from taxes.

The Agreement was confirmed and validated by Statute of Ontario, 3 Edward VII., Chap. 112, and is set out in Schedule A to that Act. Clause 8 of the Agreement provided for the cancellation of prior agreements, and for the payment of $500 up to and inclusive of the 15th December, 1912, in lieu of all taxes or rates other than school rates, upon the tracks, rights of way, poles, wires, rolling stock, and all superstructures and substructures and all the property of the Company not exempt by law from taxes. Besides this commutation, this property was to be exempt from all taxes other than school rates until the 31st December, 1922. This commutation and exemption only extended to part of the Company's property—to the tracks, rights of way, etc. The real estate which the City are assessing and taxing was not included in the exemption under the Agreement.

The Assessment Act in force when the Agreement was made was R. S. O. 1897, Chap. 224, as amended by the Assessment Amendment Act of 1902, 2 Edward VII., Chap. 31. Subsection 3 of Sec. 1 of 2 Edward VII., Chap. 31, provides that the rails, ties, poles, wires, gas and other pipes, mains, conduits, substructures and superstructures upon the streets, roads, highways, lanes and other public places of the municipality belonging to telephone, telegraph, street railway and electric railway companies, shall be regarded as "land" within the meaning of the Assessment Act, and when and so long as in actual use shall be assessed at their actual cash value, etc.

This Act came in force on the 17th of March, 1902. The City and the Company no doubt had this legislation in mind when they made the Agreement of the 28th July, 1902. The Assessment Act of that date, R.S.O. 1897, Chap. 224, Sec. 7, provided that all property in the provinces should be liable to taxation that did not come within the exemptions mentioned in the Act. The scheme of taxation still is to make real estate assessable unless an exemption can be established. The Company's real estate was expressly excepted from the exemption, which applied to the tracks, rights of way, etc., set forth in Clause 9 of the Agreement. Both subsection 9 of section 1 of R. S. O. 1897, Chap. 224, and subsection 7 of section 2 of the Assessment Act of 1904, 4 Edward VII., Chap. 23, provide that real estate shall include buildings and machinery. The Board are of opinion that the buildings and machinery that are included in the real estate by virtue of the above Acts are not superstructures or substructures within the meaning of the Agreement of the 28th July, 1902.

The Company operate an electric light plant in connection with their railway. The Board are of opinion that this does not alter the aspect of the case. The Company are assessed in respect of their railway for $18,000 for land and $30,000 for machinery, and in respect of the Electric Light Department for $4,500 for land and $8,000 for machinery. The Board thinks this assessment is right.

The Company are also taxed for business assessment. This impost could not have been within the contemplation of the parties when the Agreement of 28th July, 1902, was made, for the reason that it had not then been thought of by the Legislature. The Agreement is not sufficiently wide and far-reaching to include it. By Clause (*i*) of Section 107 of the Assessment Act of 1904, 4 Edward VII., Chap. 23, the business of a street railway shall be assessed for a sum equal to 25 per cent. of the assessed value of the land occupied or used, exclusive of the value of any machinery, placed upon or affixed to the land. The business assessment is not an assessment against the land. The value of the land is merely used to fix the amount of the assessment. The Board are of opinion that the Company are liable to business assessment, and the Agreement of the 28th of July, 1902, does not exempt them.

The parties stated on the argument that after the Board gave their written opinion they could agree on the assessment themselves.

The Board makes no order as to costs except that the Company shall pay $10.00 for stamps on the final order.

In case the parties should fail to agree as to the amount of the assessment, the Board reserves further consideration and direction.

Dated at Toronto the 16th day of February, 1911.

(Signed) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

Procedure File 874.

Application by the Bell Telephone Company, under 10 Edw. VII., C. 84, Sec. 10, for approval of Agreement with A. W. Ross. (The Ross Private Telephone Line.)

Jan. 6. Agreement filed. Order.

Procedure File 875.

Application by the Bell Telephone Company, under 10 Edw. VII., C. 84, Sec. 10, for approval of Agreement with the South Bruce Rural Telephone Co., Limited (Incorporated).

Jan. 9. Agreement filed. Order.

Procedure File 876.

Application by the Township of Stamford, County Welland, under 9 Edw. VII., c. 75, sec. 3, as amended by 10 Edw. VII., c. 87, sec. 3, for approval of By-law No. 21 for 1910, granting to the Ontario Distributing Company, Limited, twenty year franchise to convey electric power, etc., through the Township, on terms.

Jan. 10. Application received from Provincial Secretary's Department, considered and approved.

Jan. 10. Order.

Upon the application of the Municipal Corporation of the Township of Stamford, and upon reading the Notice of Application, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law Number 21 for 1910 of the Municipal Corporation of the Township of Stamford, intituled "By-law No. 21 for 1910. A By-law to grant certain privileges to The Ontario Distributing Company, Limited," be and the same is hereby approved under and in pursuance of Section 3 of Chapter 87 of the Ontario Statutes for 1910 and Clause (*e*) of Section 53 of Chapter 31 of the Ontario Statutes for 1906.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 877.

In the matter of proposed Legislation for Interswitching between Dominion and Provincial Railways.

Jan. 13. Copy of proposed amendment to Dominion Railway Act, etc., filed.

Feb. 13. Chairman of the Board, and Honourable J. P. Mabee, Chief Commissioner Dominion Railway Commission, having agreed upon form of legislation to be submitted to Provincial Legislature—letter to Sir James Whitney, Premier of Ontario, with same.

March 24. Act of Provincial Legislature containing above Legislation assented to, being "An Act to amend the Ontario Railway Act, 1906." (1 Geo. V., c. 52 (Ont.))

An Act to amend The Ontario Railway Act, 1906.
(1 Geo. V., Chapter 52 (Ont.)).

His Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows:

1. Section 98 of The Ontario Railway Act, 1906, is amended by adding thereto the following subsections:

(8) Where the lines or tracks of any railway, the construction or operation of which is authorized by the Legislature of the Province of Ontario, are intersected by those of a railway the construction or operation of which is authorized by the Parliament of Canada, or in any case in which the tracks or lines of any two such railways run through or into the same city, town or village, and it is desired by one of such companies or by any municipal corporation or other public body, or any person or persons interested, that the lines or tracks of such railways should be connected, so as to admit of the safe and convenient transfer of engines and trains from the tracks or lines of one railway to those of another, and for the reasonable receiving, forwarding, delivery and interswitching of traffic between the said railways, the following proceedings may be had and taken:

(*a*) Either of such companies, or any municipal corporation or other public body, or any person or persons interested, may file with the Secretary of the Board, and with the Secretary of the Board of Railway Commissioners for Canada, an application for an order that such connection should be required to be made, together with evidence of service of

such application upon the railway company, or companies, interested or affected, and where the application is not made by the municipality upon the head of the municipal corporation within which the proposed connection is situate.

(*b*) After the receipt of the said application the Board, and the Board of Railway Commissioners for Canada, may, by joint session or conference, in conformity with the practice to be established by them, hear and determine the said application, and may order that the lines and tracks of such railways shall be so connected at or near the point of intersection, or at or near such city, town or village, upon such terms and conditions and subject to such plans as they may deem proper.

(*c*) The Chairman of the Board, and the Chairman of the Board of Railway Commissioners for Canada, may make rules of procedure and practice covering the making of such applications and the hearing and disposition thereof, and may vary, alter or rescind the same from time to time.

(*d*) The Chairman of the Board, and the Chairman of the Board of Railway Commissioners for Canada, may from time to time assign or appoint from each Board the members comprising the joint Board that may be required to sit for the hearing and determining of such applications, as they arise.

(*e*) Any order aforesaid may be made a rule of the Exchequer Court of Canada, and may be enforced in like manner as any rule, order, or decree of such Court.

(9) The word "railway" shall in the next preceding subsection include any steam or electric street railway or tramway.

Procedure File 878.

Application by the Harrietsville Telephone Association, Limited, under 10 Edw. VII., c. 84, sec. 10, for approval of agreement with the Ingersoll Telephone Company, Limited.

Jan. 16. Agreement filed.

Jan. 17. Agreement considered and approved. Order.

Procedure File 879.

Application by the Town of Dunnville, under 8 Edw. VII., c. 51, for validation of By-law 17, 1910, and the debentures thereunder ($30,000 for High School purposes).

Jan. 23. Application and material filed.

Jan. 25. Application and material considered and approved.

Jan. 25. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Mercer & Bradford, Solicitors for the Applicant, the affidavit of John W. Holmes, Clerk of the said Town, the certified copy of the said By-law and the other material filed.

The Board orders that the said By-law Number 17, A.D. 1910, of the said Corporation, intituled "By-law Number 17, A.D. 1910. By-law to provide for borrowing the sum of $30,000 for High School purposes in the Town of Dunnville," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Dunnville, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures to be issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

Procedure File 880. (P.F.P. 68.)

Application by the Toronto and York Radial Railway Company, under 6 Edw. VII., c. 30, sec. 89, for approval of plans, etc., of bridge over Mimico Creek.

Jan. 26. Application and material filed. Referred to Board's Engineer.

Feb. 6. Plans, etc., received from Engineer with Report approving.

Feb. 6. Plans, etc., certified.

The Chairman of The Ontario Railway and Municipal Board, Toronto.

Sir,—In accordance with your instructions I have examined the plans of the through plate girder bridges submitted to you by the Toronto and York Radial Railway over Mimico Creek and York Mills.

The Mimico Creek Bridge is a double track one, consisting of two outside through plate girders and one centre one, the latter carrying the load of one track. This bridge is 106′ out to out of girders and the distance between girders centre to centre is 17′ 6″.

The York Mills Bridge is a single track one consisting of two through plate girders 103′ out to out of girders and the distance between girders is 17′ 6″ centre to centre.

I find all the stresses to conform fully with the loading the bridges were designed for, viz., Class II. Dom. Govt. Specifications for 1908, with the specified allowance for Impact, etc., which conforms also to your Board's requirements.

Yours truly,
(Signed) H. W. Middlemist.

Procedure File 881. (P.F.P. 69.)

Application by the Toronto and York Radial Railway Company, under 6 Edw. VII., c. 30, sec. 89, for approval of plans, etc., of new bridge for York Mills.

Jan. 26. Plans, etc., filed and referred to Board's Engineer.

Feb. 6. Plans, etc., received from Engineer with Report approving. (See P. F. 880.)

Plans, etc., certified.

PROCEDURE FILE 882.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Kaladar and Northern Telephone Company (not incorporated).

Jan. 31. Agreement filed.

Feb. 10. Order.

PROCEDURE FILE 883.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Lavant-Dalhousie Telephone Association (not incorporated).

Jan. 31. Agreement filed.

Feb. 10. Order.

PROCEDURE FILE 884.

Application by the City of Hamilton, under 9 Edw. VII., c. 73, sec. 12, and 6 Edw. VII., c. 31, sec. 53, for approval of Bridge construction By-law 1071 ($3,500), Bridge ordered by Dominion Railway Commission.

Feb. 2. Application and material filed, considered and approved. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by F. R. Waddell, Esquire, K.C., Solicitor for the Applicants, the certified copy of the said By-law No. 1071, the Statutory Declarations of George H. Lees, Mayor; Samuel H. Kent, Clerk, and W. R. Leckie, Treasurer, of the said City, and the other material filed,

The Board orders under and in pursuance of 9 Edward VII., Chapter 73, Section 12, as amended by 10 Edward VII., Chapter 85, Section 6, that the said By-law No. 1071 of the Municipal Corporation of the City of Hamilton, intituled "By-law No. 1071. For the Issue of Debentures for $3,500 to pay a portion of the City's Share of the Cost of the Construction of the Garth Street Bridge over the tracks of the Toronto Branch of the Toronto, Hamilton and Buffalo Railway Company," be and the same is hereby approved.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 885.

Application by the City of Hamilton, under 3 Edw. VII., c. 19, sec. 420, and 6 Edw. VII., c. 31, sec. 53, for approval of Sinking Fund Investment By-law 1097. (To invest $3,500 of the Sinking Fund under By-law 693 in the Debentures to be issued under By-law 1071.)

Feb. 2. Application and material filed, considered and approved. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by F. R. Waddell, Esquire, K.C., Solicitor for the Applicants, the certified copy of each of the said By-laws numbered 693, 1071 and 1097, the Statutory Declarations of George H. Lees, Mayor, Samuel H. Kent, Clerk, and W. R. Leckie, Treasurer, of the said City, and the other material filed.

The Board orders under and in pursuance of Section 420 of "The Consolidated Municipal Act, 1903," and of Section 53 of "The Ontario Railway and Municipal Board Act, 1906," that the said By-law No. 1097 of the said Municipal Corporation of the City of Hamilton, intituled "By-law No. 1097, for the investment of part of the Sinking Fund raised under By-law No. 693," be and the same is hereby approved.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 886. (P. F. P. 71.)

Application by the Mount McKay & Kakabeka Falls Railway Company, under 6 Edw. VII., c. 30, sec. 59, for approval of Plan and Profile of its line on Neebing Avenue from Montreal Street to the Kaministikwia River.

Feb. 3. Plan and Profile filed and referred to Board's Engineer.

Feb. 10. Engineer's Report received and copy sent to Applicant's Solicitors.

Feb. 20. Amended Profiles filed as required by Engineer's Report. Plans and Profiles approved and certified, on condition that Plans of Bridge be submitted for approval before same be constructed.

February 10, 1911.

The Chairman of the Ontario Railway and Municipal Board, Toronto.

SIR,—I have examined the plans and profiles of the Mount McKay & Kakabeka Falls, Railway along Neebing Avenue, Fort William, from station 0+00 at Montreal Street to station 154+30 on William Street, also from station 0+00 on Montreal Street to station 40+14 at the River.

The plans are made to conform to your Act respecting plans and profiles to be submitted to your Board, but the profiles simply show the elevations of the ground lines, the grade lines of the track being omitted, also the rise and fall of the same and the degree of all curves. All these should be shown on the profiles for all lines of railway submitted for the approval of your Board. The grade lines should have a vertical line given at each end of each change of grade, with the elevation marked on at every change, and the grade per cent. shown on each grade line. Below the grade line it is usual to draw a horizontal line right along the profile and where a curve comes on the plan to show it on this line by means of a part of a circle marking thereon the degree of curve and the beginning and end thereof with the proper stations.

The spans and nature of all bridges, whether steel, wood, concrete, etc., should also be shown on the profile and the detail plans and stress sheets submitted to your Board for approval. I notice there are some on these lines, and as heavy freight is to be hauled, your specifications call for "class light" loading.

Yours truly,

(Signed) H. W. MIDDLEMIST.

PROCEDURE FILE 887. (P. F. P. 71.)

Application by the Mount McKay & Kakabeka Falls Railway Company, under 6 Edw. VII., c. 30, sec. 59, for approval of Plan and Profile of its line on Neebing Avenue from William Street to Montreal Street.

Feb. 3. Plan and Profile filed and referred to Board's Engineer.

Feb. 10. Engineer's Report received and copy sent to Applicant's Solicitors.

Feb. 20. Amended Profiles filed as required by Engineer's Report. Plans and Profiles approved and certified on condition that Plans of Bridge be submitted for approval before same be constructed.

(For Engineer's Report see P. F. 886.)

Procedure File 888.

Application by the City of Hamilton under sec. 420 of "The Consolidated Municipal Act, 1903," for approval of Sinking Fund Investment By-law 1096. (For investment purchase at par of the Debentures for $18,000 issued under By-law 1042, out of Sinking Fund on hand under By-law 693.)

Feb. 4. Application and material filed.

6. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by F. R. Waddell, Esquire, K.C., Solicitor for the Applicants, the certified copy of the said By-laws numbered 693, 1042 and 1096, and the Statutory Declarations of George H. Lees, Mayor; Samuel H. Kent, Clerk; and William R. Leckie, Treasurer of the said city,

The Board orders under and in pursuance of Section 420 of "The Consolidated Municipal Act, 1903," and of Section 53 of "The Ontario Railway and Municipal Board Act, 1906," that the said By-law No. 1096 of the said Municipal Corporation of the City of Hamilton, intituled "By-law No. 1096, for the investment of part of the Sinking Fund raised under By-law No. 693," be and the same is hereby approved.

(Signed) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

Procedure File 889.

Between

The Commissioners for the Queen Victoria Niagara Falls Park,
Applicants,

and

Peter Hathaway,
Respondent.

(To have the Board fix, under 10 Edw. VII., c. 11, the compensation payable to Respondent for lands taken under 10 Edw. VII., c. 21.)

Feb. 6. Notice to Owner and Application to Board filed.

8. Joinder of Issue filed by Applicants.

Aug. 1. Application for Hearing.

Sept. 9. Board appoints 26th inst., 3 p.m., at the Administration Building, Niagara Falls, for hearing.

Sept. 26. Hearing. Settlement effected after hearing of evidence.

Nov. 18. Order in terms of settlement.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

The 18th day of November, A.D. 1911.

Before James Leitch, Esq., K.C., Chairman; A. B. Ingram, Esq., Vice-Chairman; H. N. Kittson, Esq., Member.

Between

The Commissioners for the Queen Victoria Niagara Falls Park,
Applicants.

and

Peter Hathaway,
Respondent.

In the Matter of Expropriation of land taken for the Esplanade in pursuance of the Queen Victoria Niagara Falls Park Act, and in the manner provided thereby and by the Ontario Public Works Act.

In the Matter of Peter Hathaway, owner of part of Lot 17, Township of Willoughby, County of Welland.

Upon the Application of the above-named applicants in the presence of the applicants and respondent, upon hearing the evidence adduced on behalf of the Applicants and Respondent and upon hearing Counsel for the Applicants and Respondent,

The Board orders in pursuance of the agreement between the parties above named that the compensation to be paid the respondent is the sum of $1,500, of which sum one thousand dollars shall be paid forthwith to the Respondent and the remaining sum of Five Hundred Dollars so soon as the said Respondent shall have removed all the structures on the lands taken by the Commissioners.

And makes no order for costs except that the Applicants shall pay $10.00 for the stamp on this Order.

(Signed) JAMES LEITCH,
Chairman.

PROCEDURE FILE 890.

Between

The Commissioners for the Queen Victoria Niagara Falls Park,
Applicants,

and

Adam Kabel,
Respondent.

(To have the Board fix the Compensation for the Respondent's lands under 10 Edw. VII., c. 11, and c. 21.)

Feb. 6. Notice to Owner and Application to Board filed.

8. Joinder of Issue filed by Applicants.

Aug. 1. Application for Hearing.

Sept. 9. Board appoints 3 p.m., 26th inst., at Administration Building, Niagara Falls, for Hearing.

Sept. 26. Hearing. Settlement effected.

Nov. 18. Order in terms of settlement.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

The 18th day of November, A.D. 1911.

Before James Leitch, Esq., K.C., Chairman; A. B. Ingram, Esq., Vice-Chairman; H. N. Kittson, Esq., Member.

Between

The Commissioners for the Queen Victoria Niagara Falls Park,
Applicants,

and

Adam Kabel,
Respondent.

In the Matter of Expropriation of land taken for the Esplanade in pursuance of the Queen Victoria Niagara Falls Park Act and in the manner provided thereby and by the Ontario Public Works Act.

In the Matter of Adam Kabel, owner of part of Lot 5 Broken Front, Township of Willoughby, County of Welland.

Upon the Application of the above-named Applicants in the presence of the Applicants and Respondent upon hearing the evidence adduced on behalf of the Applicants and Respondent and upon hearing Counsel for the Applicants and Respondent,

The Board orders in pursuance of the agreement between the parties above named that the Compensation to be paid the Respondent is the sum of $3,700 shall be paid forthwith to the Respondent.

And makes no Order for costs except that the Applicants shall pay $10.00 for the stamp on this Order.

(Signed) JAMES LEITCH,
Chairman.

(Seal.)

PROCEDURE FILE 891.

Between

The Commissioners for the Queen Victoria Niagara Falls Park,
Applicants,

and

Lee Brothers,
Respondents.

(To have the Board fix the Compensation for the Respondents' lands under 10 Edw. VII., c. 11, and c. 21.)

Feb. 6. Notice to Owner and Application to Board filed.

8. Joinder of Issue filed by Applicants.

Aug. 1. Application for Hearing.

Sept. 9. Board appoints 3 p.m., 26th inst., at Administration Building, Niagara Falls, for the Hearing.

Sept. 26. Hearing. Settlement effected.

PROCEDURE FILE 892.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Inwood Rural Telephone Company, Limited.

Feb. 8. Agreement filed.
18. Order.

PROCEDURE FILE 893.

Re Bill No. 13, 1911, an Act to confirm By-law No. 396 of the Town of Palmerston (to consolidate floating debt, $10,000).

Feb. 9. Copy of Bill received under Rule of the House No. 61*a*.

Feb. 14. Board appoints 21st inst., at 2.30 p.m., for Hearing herein.

Feb. 21. Hearing—after which Board decides in favour of the Bill and reports to the House accordingly.

To the Honourable the Legislative Assembly of the Province of Ontario.

The undersigned have had under consideration Bill (No. 13), intituled "An Act to Confirm By-law No. 396 of the Town of Palmerston," and the Petition therefor.

The Board has made enquiry into the allegations set out in the Bill and into all other matters which the Board deem necessary in connection therewith, and beg to report that it is reasonable that such Bill do pass into law.

Dated this 21st day of February, A.D. 1911.

(Signed) JAMES LEITCH,
Chairman.
(Signed) A. B. INGRAM,
Vice-Chairman.
(Signed) H. N. KITTSON,
Commissioner.

PROCEDURE FILE 894.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of an Agreement with D. McEachren, M.D. (The McEachren Rural Telephone System).

Feb. 14. Agreement filed.
24. Order.

PROCEDURE FILE 895.

Re Bill No. 15, 1911. An Act to consolidate the Floating Debt of the Village of Beamsville.

Feb. 16. Above Bill received under Rule of the House No. 61*a*.
Appointment for Hearing 27th inst., at 2.30 p.m. issued.
Feb. 27. Hearing. Board decides in favor of the Bill.
Report accordingly.

To the Honourable the Legislative Assembly of the Province of Ontario.

The undersigned have had under consideration Bill (No.15, 1911), intituled "An Act to Consolidate the Floating Debt of the Village of Beamsville," and the Petition therefor.

The Board has made enquiry into the allegations set out in the Bill and into all other matters which the Board deem necessary in connection therewith, and beg to report that it is reasonable that such Bill do pass into law.

Dated this 27th day of February, A.D. 1911.

(Signed) JAMES LEITCH,
Chairman.
(Signed) A. B. INGRAM,
Vice-Chairman.
(Signed) H. N. KITTSON,
Commissioner.

PROCEDURE FILE 896.

Re Bill No. 27, 1911. An Act to Consolidate a part of the Debenture Debt of the Town of St. Mary's.

Feb. 16. Above Bill received under Rule of the House No. 61*a*.
Board appoints March 3rd, at 2.30 p.m., for Hearing.
March 3. Hearing, at conclusion of which Board decides to Report the Bill.
March 3. Report.

To the Honourable the Legislative Assembly of the Province of Ontario.

The undersigned have had under consideration Bill (No. 27, 1911), intituled "An Act to Consolidate a part of the Debenture Debt of the Town of St. Mary's," and the petition therefor.

The Board has made enquiry into the allegations set out in the Bill and into all other matters which the Board deem necessary in connection therewith, and beg to report that it is reasonable that such Bill do pass into law, and that a schedule be added thereto giving the form of debentures authorized by the Bill.

Dated this 3rd day of March, A.D., 1911.

(Signed) JAMES LEITCH,
Chairman.
(Signed) A. B. INGRAM,
Vice-Chairman.
(Signed) H. N. KITTSON,
Commissioner.

PROCEDURE FILE 897.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of an Agreement with the Rankin Telephone Company (Registered).

Feb. 18. Agreement filed.
28. Order.

PROCEDURE 898.

THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK,

vs.

M. B. BARNHART.

(To have the Board fix, under 10 Edw. VII., c. 11, the compensation payable for Respondent's lands being expropriated under 10 Edw. VII., c. 21.)

Feb. 21. Application filed.
May 16. Application for Hearing 30th inst.
May 25. Application withdrawn, case settled.

PROCEDURE FILE 899.

G. C. WILSON, M.P.P.,

vs.

HAMILTON AND DUNDAS ST. RAILWAY.

Re (*a*) Motive Power; (*b*) Time Schedule; (*c*) Lighting cars; (*d*) No cars kept in Dundas for emergencies, etc.; (*e*) Discrimination in rates against Dundas.

Feb. 23. Application filed. Notice to Company directing reply within eight days.

March 4. Reply filed.

March 29. Conference between Board and Parties, pursuant to Arrangement. Company to make improvements as arranged. Matter adjourned meanwhile to July 5th, 1911.

July 5. If the Headings, as per 1, 2 and 3, shown on the sheet of the Chairman's notes of 29th March, 1911, were complied with by the Company, then no further Hearing would be necessary. The fact of the Applicant in this case having taken no further action in the matter, it is assumed that the Company have carried out his wishes.

PROCEDURE FILE 900.

In the matter of Enquiry, under 6 Edw. VII., c. 31, sec. 55, into Bill No. 26, 1911, "An Act respecting the City of St. Catharines."

Feb. 21. Above Bill referred to Board by Committee of the Legislature of Ontario.

Feb. 23. Board appoints Tuesday, 28th inst., at 2.30 p.m., at its Chambers, for the Hearing.

Feb. 28. Hearing. Judgment reserved.

March 6. Judgment delivered in favour of Bill.
Bill reported.

In the matter of Bill No. 26. "An Act respecting the City of St. Catharines."

Pursuant to the direction of the Private Bills Committee of the Legislature of Ontario to enquire and report on this Bill, the Board perused the Affidavits of John Albert Pay, Esq., Clerk of the City of St. Catharines, and Alex. Milne, Esq., C.E., Superintendent of the Waterworks System of the City of St. Catharines, and his

Reports on the Waterworks for the years 1906, 1907, 1908, 1909 and 1910: the Affidavit of William Adams Middleburger, Esq., Treasurer of the City of St. Catharines, and his statement of the finances of the said City.

The Board also heard the *viva voce* testimony upon oath of the said Treasurer and the said Alex. Milne, and Charles H. Mitchell, Esq., Consulting Hydraulic Engineer. The Board also perused the report of the said Charles H. Mitchell on the water supply of the City, and the plans and maps thereto annexed; and the report of the Canadian Fire Writers' Association on their inspection of the fire protection appliances of the City of St. Catharines, bearing date the 9th of August, 1910.

The Board also perused the letters and statements filed by James Prior, Esq., one of the Water Commissioners. The Board also heard Counsel on behalf of the City and of Mr. Prior. Mr. Prior relied upon the statements of Counsel and the letters and statements filed on his behalf and tendered no evidence on oath.

Mr. Kittson, one of the Commissioners, heard the statement of Mr. Harry Vigeon, the special Auditor of the books of the City. Mr. Vigeon reported to Mr. Kittson that the City had neglected to raise sinking funds amounting to $193,538 for the payment of their debentures when they become due.

The Board are of opinion from the evidence adduced that the scheme of improving the water supply and works of the City of St. Catharines, recommended by Alex. Milne, Esq., C.E., and Charles H. Mitchell, Esq., Consulting Hydraulic Engineer, by obtaining a greater head of water by gravity from the source of supply by means of a duplicate main twenty-four inches in diameter and connecting it with the present distribution system of the City, is in the public interest, and is necessary for fire protection and for domestic, sanitary and industrial purposes, and that the City should have legislative authority in the terms of the By-law, which was carried by a vote of 705 to 407 of the ratepayers entitled to vote to raise $180,000 by debentures payable in thirty years to pay for such improvements.

The Board also recommends that the City should be given legislative authority to raise the sum of $193,538 by debentures payable in twenty years to pay the sinking funds which the City has failed to provide, as and when the money is required for the payment of the City's debentures.

The Board recommends that the debentures to raise these amounts of $180,000 for the improvement of waterworks, and $193,538 to pay for the sinking funds, shoud be payable upon the instalment plan, or that the amounts necessary to provide a sinking fund to meet such debentures should be paid in to the Honourable, the Provincial Treasurer, under the authority of The Municipal Securities Act.

The Board also recommends that Clause 5 of the Bill, providing that the City's borrowing powers should not be affected by the debts created under the Act, should be struck out. The City should not attempt to exceed their statutory borrowing powers in future without applying to the Legislature for further legislation as the occasion may arise.

All of which is respectfully submitted.

Dated at Toronto, the 6th day of March, 1911.

(Signed) James Leitch,
Chairman.

(Signed) A. B. Ingram,
Vice-Chairman.

(Signed) H. N. Kittson,
Commissioner.

PROCEDURE FILE 901.

Application by the Town of Ingersoll, under 8 Edw. VII., c. 51, for validation of By-law 703, and debentures ($39,800 to purchase plant, etc., of Ingersoll Electric Power & Light Company, Ltd.).

Feb. 23. Application and material filed, considered and approved, Board having heard Counsel for Applicant.

Feb. 23. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Clarke, Bowes & Swabey, Solicitors for the Applicant, the Statutory Declarations of Angus McKay, Mayor, and William R. Smith, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 703 of the said Corporation, intituled "By-law No. 703. To provide for the issue of Debentures to the amount of ($39,800) Thirty-nine Thousand Eight Hundred Dollars for the purpose of purchasing the Works, Plant and Equipment of the Ingersoll Electric Power & Light Company, Limited, and paying other expenses connected therewith," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Ingersoll, and declaring the same valid and binding and that its validity is not open to question in any Court on any ground whatever, and that the Debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 902.

In the matter of the Application by the Town of Ingersoll, under 8 Edw. VII., c. 51, for validation of By-law 704, and Debentures ($15,000 for extensions to Electric Light Plant).

Feb. 23. Application and material filed, considered and approved, Board having heard Counsel for Applicant.

Feb. 23. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Statutory Declarations of Angus McKay, Mayor, and William R. Smith, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 704, of the said Corporation, intituled "By-law No. 704. To provide for the issue of debentures to the amount of ($15,000) Fifteen Thousand Dollars to pay for the cost of making the necessary alterations and extensions to the Electric Light Plant, required for the purpose of distributing Power, Light and Heat within the Corporation of the Town of Ingersoll," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of

the Municipal Corporation of the Town of Ingersoll, and declaring the same valid and binding and that its validity is not open to question in any court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 903.

In the matter of the Application by the Bell Telephone Company, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with Robert Brigham.

Feb. 25. Agreement filed, considered and approved.

Mar. 10. Order.

PROCEDURE FILE 904.

Re Bill No. 61, 1911. "An Act respecting the Town of New Liskeard."

Feb. 25. Above Bill received under Rule of the House No. 61*a*. Appointment for Hearing March 7, 2.30 p.m., issued.

March 7. Hearing. Boards decides in favour of Bill.

Report.

To the Honourable the Legislative Assembly of the Province of Ontario.

The undersigned have had under consideration Bill (No. 61, 1911), intituled "An Act respecting the Town of New Liskeard," and the petition therefor.

The Board has made enquiry into the allegations set out in the Bill and into all other matters which the Board deem necessary in connection therewith, and beg to report that it is reasonable that such Bill do pass into law.

Dated this 7th day of March, A.D. 1911.

(Signed) JAMES LEITCH,
Chairman.
(Signed) A. B. INGRAM,
Vice-Chairman.
(Signed) H. N. KITTSON,
Commissioner.

PROCEDURE FILE 905.

Application by the Village of Marmora, under 8 Edw. VII., c. 51, for validation of By-law 93, and debentures. ($4,000 for electric plant.)

March 1. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Statutory Declarations of William Henry Hubbell, Reeve, and Howard Wendell Sabine, Clerk, of the said Village, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 93 of the said Corporation, intituled "By-law No. 93. A By-law to authorize, ratify and confirm a contract of the Municipal Corporation of the Village of Marmora for the purchase of the electric light plant or system with poles, wires, lamps, transformers, meters, dynamo, including cross-bars and brackets and all appliances and full equipment connected with the said electric plant or system now installed within the limits of the said Village of Marmora, with Thomas English, Esquire, the present owner thereof for the sum of $2,000.00, and a further sum of $2,000.00 for the improvements and extension thereof," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Village of Marmora, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures to be issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Seal) (Signed) JAMES LEITCH.
Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 906.

Re Bill No. 53, 1911. "An Act to confirm By-law No. 282 of the Town of Sturgeon Falls." ($20,000 to pay indebtedness incurred for improvements.)

March 3. Above Bill received from Private Bills Committee of the Legislature.

Board appoints 9th inst. to hear all parties interested in or supporting or opposing this Bill.

March 9. Hearing. Board decides in favor of Bill.

Report.

To the Honourable the Legislative Assembly of the Province of Ontario.

The undersigned have had under consideration Bill (No. 53, 1911), intituled "An Act to confirm By-law No. 282 of the Town of Sturgeon Falls," and the petition therefor.

The Board has made inquiries into the allegations set out in the Bill and into all other matters which the Board deem necessary in connection therewith, and beg to report that it is reasonable that such Bill do pass into law.

Dated this Ninth day of March, A.D., 1911.

(Signed) JAMES LEITCH.
Chairman.

(Signed) A. B. INGRAM.
Vice-Chairman.

(Signed) H. N. KITTSON.
Commissioner.

PROCEDURE FILE 907.

Application by Toronto Railway Co. for approval of Safety Devices for its cars.

March 6. On application of the Company, Board orders and appoints John F. H. Wyse to supervise the construction of, inspect and report to the Board on Safety Devices for use on the cars of the Company.

April 3. Engineer's Interim Report filed.

April 3. Copy despatched to City of Toronto and Toronto Railway Company.

April 12. Engineer's Report re Rear End Signal filed and copy despatched to Toronto Railway Company and to City of Toronto.

Dec. 6. Supplementary Report filed by Engineer.

Dec. 20. Further Report filed by Engineer.

Toronto, February 28th, 1911.

R. J. FLEMING, Esq.,

General Manager, Toronto Railway Co., City.

DEAR SIR,—In carrying out your instruction, we are now engaged in designing and building a number of safety devices, with a view to securing the best to prevent accidents on our cars. There are also a number of devices being offered by outside inventors.

As the Railway Board's approval will be asked for such of those safety appliances as may be found sufficiently efficient for adoption, and as this work will entail a great deal of altering, improving and testing, before it will be possible to arrive at a decision as to which of these devices will be most suitable and efficient, I would be very glad indeed if arrangements could be made to secure the services of the Railway Board's Engineer (Mr. Wyse) to look after the different devices in course of construction and installation, with a view to passing on the same for the Board's consideration.

A further reason for making this suggestion is that this will enable us to secure the very best safety device in the shortest possible time, by having Mr. Wyse at our works, and giving him carte-blanche, as representative of the Railway Board, in this very important matter.

Trusting that this will meet with your approval, and, if so, that satisfactory arrangements may be made at once as outlined above.—I remain, yours truly,

(Signed) W. R. MCRAE,
Master Mechanic.

February 28th, 1911.

JAMES LEITCH, Esq., K.C.,
Chairman, Ontario Railway & Municipal Board,
Manning Chambers, Toronto.

DEAR SIR,—Herein I enclose you copy of communication which I have received from our Master Mechanic, Mr. W. R. McRae, in reference to my securing for him the assistance of Mr. Wyse in determining the best class of safety devices for this Company to instal upon its cars.

I do not know whether the doing so would conflict in any way with the duties performed by Mr. Wyse for your Board, but, if it would not, I should be very glad with your approval, to make arrangements with him for his services in any way you may think right.

Yours truly,
(Signed) ROBERT J. FLEMING.

Manning Chambers, March 3rd.

DEAR SIR,—Yours of the 28th ult., enclosing copy of Mr. McRae's letter asking that the Board's Engineer should supervise the installing, improving and testing of the safety devices which you intend to put upon the cars of the Company, was duly received.

Any safety devices which you may instal upon the cars of the Company will require to be approved by the Board upon the advice of the Board's Engineer. That being the case, the Board are of opinion that it would be better that Mr. Wyse should have the supervision of the construction, improving, testing and installing of the devices that may be most suitable and efficient. The Board think it would be better that Mr. Wyse's supervision should be had while the work of constructing and installing is in progress. He will be in better position to come to a conclusion as to the efficiency of any of the devices than if he had only an opportunity of inspecting them and testing them after they had been put in operation.

The Board will by order appoint Mr. Wyse for the above supervision, the Company, however, as is the practice of the Board will require to pay the Board Mr. Wyse's fees and expenses.

Yours truly,
(Signed) JAMES LEITCH,
Chairman.

R. J. FLEMING, Esq.,
Toronto.

The Ontario Railway and Municipal Board.
Monday, the Sixth Day of March, A.D., 1911.

In the matter of the Toronto Railway Company and Safety Devices for the Cars of the said Company.

The Board hereby appoints J. F. H. Wyse, Esquire, C.E., one of the Board's Engineers, to supervise the construction, improving, testing and installing of safety devices that may be most suitable and efficient for the Company's Railway cars operating or to be operated in the City of Toronto.

And the Board further orders that the Company shall pay the fees and expenses of the said J. F. H. Wyse as may be fixed and allowed by the Board.

(Seal)

(Signed) JAMES LEITCH,
Chairman.

Toronto, Ontario, March 27th, 1911.

To The Ontario Railway & Municipal Board,
Manning Chambers, City.

GENTLEMEN,—Pursuant to your instructions to supervise the construction, improvement, testing and installing safety devices that may be most suitable and efficient for the Toronto Railway Company's cars, operating, or to be operated in the City of Toronto. Board's order.

I would respectfully direct your attention to the fact that the condition of the paving on the track allowance or adjacent to the rails, much of which is too high above the rails, and in many cases is in such bad shape, that it is impossible to get the best results from devices that under proper conditions would promise efficiency as accident-preventing and life-saving appliances. Pavement photographs.

I submit herewith twelve photographs of the condition of the paving at different places covering practically the entire Toronto Railway system, taken on the 10th and 11th of this month. Many of these photographs show much of the paving so badly out of place, and so high above the rail level as to make the use of efficient safety devices impossible:

Photo No. 1—Opposite 384, Sherbourne Street, 2½ in. high on west track.

Photo No. 2.—Opposite 400, Sherbourne Street, 2½ in. high on east track.

Photo No. 3—Opposite 327, Church Street 2⅞ in. high on west track.

Photo No. 4—Opposite 623, Gerrard Street, 2¾ in. high on south track.

Photo No. 5—Opposite 2005, Queen Street East, 3 in. high on south track.

Photo No. 6—Opposite 1327, Queen Street East, 3 in. high on south track.

Photo No. 7—Opposite 907, College Street, 3¼ in. high on south track.

Photo No. 8—Opposite 868, Dundas Street, 3 in. high on north track.

Photo No. 9—Opposite 240, Bathurst Street. 2¼ in. high west track.

Photo No. 10—Opposite No 12 door G. T. R. Freight Shed, Front Street West. 2¾ in. high on south track.

Photo No. 11—Opposite 732, Gerrard Street, 2½ in. high on north track.

Photo No. 12—Opposite 264, Arthur Street, 2¾ in. high on south track.

These irregularities and the height of the paving blocks above the rail as shown make it impossible to maintain safety apparatus on the cars sufficiently close to the rails to be effective. The paving should be put down and maintained even with the tops of the rails at once to get the best results. Observation of photos.

Unreasonable operation and destruction of apparatus.

The Board will readily understand that the first step towards securing satisfactory results from accident-preventing devices attached to street cars is to carry such apparatus as close as possible to the rail. Enclosed photographs and notations thereon clearly show that under existing conditions it is impossible to operate these devices at effective heights above the rail without tearing them off the cars or continually damaging them by coming in contact with these high portions of the pavements. A single high paving block on a route will destroy the safety apparatus of every car operating on that route.

Installation of safety devices.

The Company have been, and are experimenting with a number of devices under my supervision, and say they propose to continue this experimenting until the very best devices possible are secured, and their entire system equipped.

Instructions and observations.

Pursuant to the Board's instructions I have examined and tested a number of life-saving devices, and I find those that have to be operated close to the rail have been subject to such abuse by coming in contact with irregular pavement, as to render them not only unfit for practical service, but impossible to maintain. It is most difficult under these conditions to secure the greatest safety to the public.

Recommendations regarding pavements.

I would, therefore, respectfully and earnestly recommend that the parties responsible for the condition of these pavements should immediately take steps to place and maintain them even with the top of the rails so that no part will hereafter project above the rails.

I am, yours very respectfully,

(Signed) J. F. H. Wyse.

Toronto, April 11th, 1911.

To The Ontario Railway & Municipal Board,
Manning Chambers, Toronto.

Relative to recent accidents on the Toronto Railway Company's lines caused by passengers passing behind one car, and stepping in front of a car approaching in the opposite direction.

I beg to state that so far several devices and suggestions have been offered in the nature of audible and visible signals, designed as warnings and preventives against this class of accidents.

One of these devices that seemed the most promising was given an exhaustive test, with the result that it proved to be not adaptable to conditions and impossible of maintenance.

There are two causes for these accidents:—

1st. Passengers alighting from the rear of a standing car start without looking to cross in front of a car coming in the opposite direction and are caught by same.

2nd. Pedestrians (not passengers) crossing behind one car are caught by car approaching in the opposite direction.

The effective remedy for the first of these causes is to enforce the order requiring passengers to leave by the front door. The crowded conditions of the cars making it impossible for passengers near the rear door to get through to the front should be the only excuse for getting off at the rear. Passengers should be made to realize that it is in their own interests, in the saving of time and securing the

greatest safety to themselves, to work up towards the front door of the car and to alight therefrom. By getting off the front and starting to cross the tracks a person is in full view of the motorman from whose car he has just alighted, and can then plainly see an approaching car on the opposite track in plenty of time to avoid it.

The remedy, in my opinion, for the second condition leading up to accidents of this kind, is to warn the citizens through the daily and weekly papers, and by conspicuous advertisements placed in the cars, to assure themselves, when crossing behind one car that there is no car approaching dangerously near in the opposite direction.

I would further recommend that motormen must shut off their power, have their cars under control, and ring their gongs when passing standing cars.

Respectfully submitting the above, I am, yours very truly,

(Signed) J. F. H. Wyse.

Toronto, Ontario, December 4th, 1911.

To The Ontario Railway and Municipal Board,
Manning Chambers, Toronto.

Re Safety-Devices, Toronto Railway Co.

Gentlemen,—Supplementing my report of March 27th, 1911, I would state that I have made several inspections of the entire track of the Toronto Railway Company, and after each inspection sent a list of "High Paving Blocks" adjacent to the rails, that interfered with the proper operation of "safety-devices," to both Mr. Powell, assistant City Engineer, and to Mr. James Smith, the latter in charge of construction and maintenance of tracks for the Toronto Railway Company. These places are having attention, and we have been able to keep the "safety-devices" as low as when tested. Such repairs are, however, necessarily of a temporary nature, and the present track work goes to pieces so soon that it indicates the necessity for a decided improvement in the sub-structure, and pavement of the track allowance.

A permanently better road-bed will lessen the noise, increase the comfort of the passengers, by making the cars ride much more smoothly; decrease the liability to break-downs and blockades, of both vehicles and cars, and make possible the maintenance of safety-devices closer to the rail, thereby effecting the greatest security to the public.

In view of Mr. Rust's recent recommendations for better and more substantial pavements, and considering several reports from the Old Country, from England, Ireland, and Scotland, I would recommend that the City and the Railway Company send, the former their Chief Engineer, and the latter their Superintendent of Track Construction, to the Old Country to study together the Construction of Street Railway Tracks and Pavements, the sub-structure of which is represented as being very much heavier than ours, or that of the United States: the Pavements even and level with the top of the rails, and serious accidents as a comparatively rare occurrence. If this were done before more track and pavement construction is proceeded with, we would benefit by the Old Country's experience, covering hundreds of years of Street and Road building. It would be well to keep this in mind on

account of the renewals and extensions which will be necessary in the near future. It would give the City Engineer an opportunity to compare the conditions in England in their entirety, with those of the United States and Canada. On one hand we have in the Old Country a greater capital expenditure, greater interest charges, and low maintenance costs, and on the other, (in Canada and the United States) a much smaller capital expenditure, and enormous maintenance charges, with their attendant delays to traffic, and unsafe conditions.

At the same time a thorough investigation could be made of the trackless trolley, and other Street Railway conditions as used in the Old Country, with a view to their adoption here.

Since the organization of the Railway Board, and your adoption of Automatic under-running Safety-Appliances on Cars, the records show 128 lives saved in Toronto alone. Probably more lives than are shown by the records have been saved, of which there are no reports, although a bonus has lately been offered by the Railway Company for reports of *ALL* accidents. This is not only a subject for congratulation, but it is an encouragement to continue our efforts in this direction and make Toronto street traffic as safe, if not safer than any in the world.

Respectfully submitting the above, I am. Yours very truly,

(Sgd.) J. F. H. Wyse.

December 20th, 1911, Toronto, Ontario.

To the Ontario Railway and Municipal Board, Manning Chambers, Toronto.

In the matter of the Toronto Railway Company and Safety-Devices for the cars of the said company.

Gentlemen,—Complying with your instructions of March 6th, 1911, to supervise the construction, improving, testing, and installing of safety-devices that may be most suitable and efficient for the Company's Railway Cars operating, or to be operated in the City of Toronto, Would State:—

In answer to numerous advertisements inserted by the Toronto Railway Company in the daily and technical papers of Canada and the United States, some 80 (eighty) devices and suggestions were offered. Of these 13 are of the audible or visible signal type; 5 brake type; 45 of wheel guard or fender type; and 17 special devices. After due consideration given to each of these devices, a number were put into actual service, and after thorough tests the cars have been equipped with:—

No. 1.—A mirror at the corner of the car, giving the Motorman at his position near the Controller, a good view of the side and rear steps of the car which he is operating, and enabling him to see at a glance, before starting, whether any passengers are getting on or off his car.

No. 2.—A mechanism attached to the top of the cylinder-shaft of each Controller, which necessitates the Motorman, in putting on the current, to pause after each step or contact has been reached before advancing to the next. This compels the car to start from rest without disagreeable jerk, and accelerates the speed slowly.

No. 3.—Foot Gongs under the rear platforms of cars, conveniently located to be rung by the Conductor backing up or y'ing.

No. 4.—Wheel Flangers in front of all forward wheels of Double Truck Cars, except 20 of the Brill Maximum Traction Type, on which it is impractical to in-

stall them. These Maximum Traction Truck Cars are equipped with all these above mentioned safety-devices, except the Wheel Flangers.

No. 5.—Front End Side Guards on cars of both Single, and Double Truck Type.

No. 6.—Side Centre Guards on cars of Double Truck Type.

No. 7.—Expanding Gate between Motor Car and Trailer.

No. 8.—Angle Guard Boards in front of forward wheels under Trailers.

I enclose photographs of the above devices, and would recommend your approval of them for use by the Toronto Railway Company.

I have experimented with a number of Wheel-Guards including the "Tidswell" design. In the Old Country, I understand these Wheel-Guards are in use, but on account of pavement conditions, and our severe climate, they are impracticable here.

In conclusion I may say,—This work has extended over a period of some ten months. Every facility has been given me to make these experiments, and the Company have shown a willingness to adopt anything I would recommend.

Everything has been installed by the Toronto Railway Company at the present time, and under the existing conditions, in the nature of improved, and additional safety-devices which seems practical, and any further improvements to make these safety-devices more effective as life-savers, must in my opinion, be done by the City on the lines referred to in my reports of March 27th, and Decemebr 4th, 1911, relative to improved road-bed construction, and better pavement of track allowance.

Respectfully submitting the above, I am, Yours very truly,

(Signed) J. F. H. Wyse.

Procedure File 908.

Toronto Railway Company

vs.

Toronto.

(For leave to construct Louisa Street Line and Lansdowne Avenue Switches.)

March 6. Application filed.
March 20. Board appoints 27th inst., at 2.30 p.m. for hearing.
March 27. Hearing. Judgment reserved. Plans filed on P.F.P. 74.
March 29. Judgment delivered granting application.

Opinion of the Board.

The Applicants allege that they require Louisa Street, between Yonge and Terauley Street, for the construction of their new lines of railway in connection with the extensions of the lines of their system now being constructed.

Upon the hearing, the Company asked to be allowed to amend their Notice of Application, so as to include a part of Lansdowne Avenue that is required for the construction of their tracks into their car barns. The Board gave leave to the Company to amend their Notice of Application accordingly. There is no objection on the part of the City to this extension. The City objects to permission being given for construction on Louisa Street.

The questions involved between the City and the Company in reference to the streets which they require for the construction of new lines, have been so fully discussed by the Board in several opinions, that it is unnecessary to refer to them again at length in this matter. It is sufficient to say that it was settled by the Board's Order of the 18th of December, 1908, and by the appeal therefrom to the Court of Appeal and Privy Council, that the Company has the right to select the streets which they require for their new lines.

Since that decision the Legislature has intervened and enacted The Ontario Railway Amendment Act, 1910. Sec. 3 of that Act provides that a railway company shall not, without having first obtained the permission and approval of the Board, begin the construction of its railway or any extension of it upon any highway or part of a highway upon which it has authority to construct or extend its railway. Under this Statute the Board has power to withhold its permission and approval whenever it is of opinion that it has not been made to appear that the construction or extension upon such highway or part of a highway is necessary or convenient for the public service, or is not in the public interest. This section is made to apply to street railways.

The only question that is open to the Board is whether this extension upon Louisa Street is necessary or convenient for the public service or in the public interest. The Board is of opinion that the extension on Louisa Street asked for is necessary and convenient for the public service, and in the public interest, and we approve of the construction of the line and give our permission therefor.

The plan of the proposed extension was submitted to the City Engineer in accordance with the agreement between the parties. This plan is in all respects the same as other plans which have been approved by the City. No objection is made to the plan by the City, but the Company will have to furnish any further details of their plans as may be reasonably required by the City Engineer.

The Board makes no order as to costs, but the Applicants will have to pay the sum of $10 for stamps on the formal Order.

Dated at Toronto this 29th day of March, 1911.

(Signed) James Leitch,
Chairman.
(Signed) A. B. Ingram,
Vice-Chairman.
(Signed) H. N. Kittson,
Commissioner.

Procedure File 909.

William Kerley

vs.

The London and Lake Erie Railway and Transportation Co.

Application under 6 Edw. VII., c. 30, sec. 47 (3), for leave to sue Company, under sec. 193 of said Act for Sunday operations.

Mar. 8. Application filed.

Mar. 14. Affidavit of John A. Paterson and William Kerley filed.

Mar. 22. Board appoints 28th inst., at 2.30 p.m., at its Chambers for hearing on affidavit evidence.

Mar. 28. Hearing. Judgment reserved.
Mar. 31. Judgment delivered. Application granted.
April 12. Order settled and issued.

Opinion of the Board.

This is an application for leave to bring an action against this Company for the recovery of penalties imposed by Section 193 of The Ontario Railway Act, 1906, Cap. 30, for having run or operated cars on Sunday.

There is no dispute about the facts in this case. The Company, which was incorporated by virtue of Statutes of Canada, 1910, Cap. 120, 9 and 10 Edward VII., operates an electric railway from London through the City of St. Thomas to Port Stanley. The railway was declared by the Act of Incorporation to be a work for the general advantage of Canada, and is therefore under the jurisdiction of the Railway Act of Canada, R.S.O. 1906, Cap. 37.

It is provided by Section 9 of that Act that notwithstanding anything in the Act or any other Act, every railway, steam or electric, declared by the Parliament of Canada to be wholly or in part a work for the general advantage of Canada, shall be subject to any Act of the Legislature of the Province in which such railway is situate, passed after the 10th day of August, 1904, in so far as it purports to prohibit within the legislative authority of the Province, work, business or labor upon the first day of the week, commonly called Sunday, if the Governor in Council by proclamation confirms such Act. A provincial act confirmed by such proclamation is made as valid and effectual as if it had been enacted by the Parliament, of Canada, and a railway, if wholly situate within the Province, shall be subject to the Provincial Act. Section 193 of The Ontario Railway Act, 1906, was proclaimed on the 8th of December, 1906.

Nothing in Section 9 of the Dominion Act, however, applies to any railway which forms part of a continuous route or system between two provinces or between a province and a foreign country, or between any of the ports on the Great Lakes and such continuous route or system, so as to interfere with or affect through traffic, nor does it apply if the Governor in Council by proclamation declares the railway to be exempt from the section. There is no contention that the Governor in Council by proclamation has declared this railway to be exempt from the provisions of section 9. The question is whether or not this railway forms part of a continuous route or system between the Province of Ontario and the United States.

It is admitted that the Company's cars have been run on Sunday in violation of Section 193 of The Ontario Railway Act, 1906, since the month of April, 1910. If the Company have incurred penalties under that section of the Act, the Board is of opinion that under Section 47 of The Ontario Railway and Municipal Board Act, 1906, they cannot be enforced against the Company without the leave of the Board being first obtained.

The Board are of opinion that very important questions of law and fact are involved or will be involved in the action the Applicant wants to bring against the Company. On applications for leave to commence a prosecution or enforce a penalty, the Board have always held that it would be inexpedient to undertake to try out all questions of fact that may arise, and to decide important and difficult questions of law that might be involved. It must be remembered that the Board is not a Court, but an administrative body, having in connection with our duty the power to construe agreements and the statutes which we are called upon to

enforce, but we have no general power, such as the Superior Courts possess, of adjudicating upon questions of construction in the abstract.

It is our practice upon applications of this kind only to decide as to whether or not there is a colour of right. If the Applicant has a colour of right, we do not think that he should be denied the opportunity of litigating his rights in a Court of competent jurisdiction, where all questions of law and fact can be more satisfactorily dealt with than before the Board.

It makes no difference what the Board thinks in reference to Sunday cars as a question of policy. If the right of this Applicant to the quiet and peace and rest of the Sabbath has been invaded by this Company contrary to law, then he should have the opportunity of vindicating his rights before the Courts of the Province. We do not feel like closing the door of the Courts on this Applicant. If the Company have not violated the law then the Applicant will suffer the penalty of costs which the Courts impose.

The Board will make an order for leave asked for. The Board makes no order for costs except that the Applicant will pay $10 for stamps on the formal order.

Dated at Toronto the 31st day of March, 1911.

(Signed) James Leitch,
Chairman.
(Signed) A. B. Ingram,
Vice-Chairman.
(Signed) H. N. Kittson,
Commissioner.

Upon the application of the said William Kerley, in presence of Counsel for the Respondent, and upon reading the affidavits of William Kerley, John A. Paterson and Samuel Walter Mower, and upon hearing what was alleged by said Counsel:

1. It is ordered that the Applicant be at liberty to bring an action in the High Court of Justice for Ontario against the said Respondent to enforce the payment of penalties for the running by the Respondent of their railway upon the first days of the week, being the 11th, 18th and 25th days of December, 1910, amounting to the sum of $1,200.00;

2. The Board does not see fit to make any Order as to costs, except that the Applicant shall pay $10.00 for stamps on the formal Order.

(Signed) James Leitch,
Chairman.

(Seal)

Procedure File 910.

Application by City of Hamilton, under 3 Edw. VII., c. 19, sec. 420, and 6 Edw. VII., c. 31, sec. 53, for approval of Sinking Fund Investment By-law 1100 (To invest $7,500 of the Sinking Fund under By-law 693, in Debentures issued under By-law 1079).

March 10. Application and material filed, considered and approved.

March 11. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by F. R. Waddell, Esquire, K.C., Solicitor for the Applicants,

the certified copy of the said By-laws 693, 1079 and 1100, and the Statutory Declarations of George H. Lees, Mayor, Samuel H. Kent, Clerk, and William R. Leckie, Treasurer, of the said City, filed.

The Board orders, under and in pursuance of Section 420 of "The Consolidated Municipal Act, 1903," and of Section 53 of "The Ontario Railway and Municipal Board Act, 1906," that the said By-law No. 1100 of the said Municipal Corporation of the City of Hamilton, intituled "By-law No. 1100. For the investment of part of the Sinking Fund raised under By-law No. 693, in the purchase of debentures issued under By-law No. 1079," be and the same is hereby approved.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 911.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., Chap. 84, Sec. 10, for approval of Agreement with the South Elderslie Telephone Company (not incorporated).

March 11. Agreement filed.

March 21. Order.

PROCEDURE FILE 912.

Application by City of Ottawa, under 6 Edw. VII., c. 34, sec. 1, for Order for annexation thereto of part of the Township of Nepean.

March 13. Application, Resolution and Petition filed, considered and approved.

March 13. Order.

March 21. Application and material filed for issue of Order amending Order of 13th inst. herein.

March 21. Application and material considered and approved.

March 21. Amending Order.

Township of Nepean and City of Ottawa having agreed to form of Order to settle points raised herein.

March 30. Order issued.

Monday, the Thirteenth day of March, A.D. 1911.

1. Upon the application of the above-named Corporation for an Order for the annexation to the City of Ottawa of that portion of the Township of Nepean, in the County of Carleton, adjacent to the City of Ottawa, hereinafter described, and upon reading the Notice of Application, the Resolution of the Municipal Council of the said Corporation declaring that it is expedient that the said portion of the said Township should be annexed to the City of Ottawa, the petition of the majority of the ratepayers in the said portion of the said Township praying that such portion may be added to the said City, the Notice to the said Township of the said Resolution and Petition and the Affidavit of Service thereof on the Township Clerk.

2. The Board orders that that portion of the Township of Nepean, in the County of Carleton, adjacent to the City of Ottawa, bounded as follows, that is to say:—

On the north by the centre of the Ottawa River, on the south by the present northerly boundary of the City of Ottawa, on the east by the present westerly boundary of the City of Ottawa, and on the west by the westerly side of Fifth Street, as shewn on plans prepared by Robert Sparks, P.L.S., dated April 27th, 1872, W. R. Thistle, P.L.S., dated November 9th, 1872, and J. B. Lewis, O.L.S. dated 23rd May, 1908, all of which plans are recorded in the Registry Office for the City of Ottawa: be and the same is hereby annexed to the City of Ottawa.

3. The Board further orders:—

(*a*) That after annexation, the said territory shall form part of Victoria Ward in the said City.

(*b*) That the said territory shall be supplied with water from the waterworks system of the said city upon the same terms and conditions as water is now supplied in the said city.

(*c*) That the City of Ottawa shall assume all municipal indebtedness for which the said territory is now liable and shall be entitled to the property and assets of the said territory and to such interest as the said territory may have in the property and assets of the said Township.

(*d*) That the said territory shall be given police and fire protection.

(*e*) That the said territory shall be lighted by the Municipal Electric Plant of the City of Ottawa.

(*f*) That the said territory shall be drained on the local improvement system of taxation now in practice in the City of Ottawa as and when recommended by the Local Board of Health of the said City.

(g) That the Municipal Council of the City of Ottawa may grant a fixed assessment on lands or buildings, or both, in such cases as it may deem proper for a period not exceeding twenty years to any industry which may hereafter be established within the said territory, the site of which shall not be more than one thousand (1,000) feet distant from the tracks of any railway.

4. And the Board further orders that this Order shall take effect on and from the date thereof.

(Signed) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

Tuesday the Twenty-first day of March, A.D. 1911.

1. Upon the application of the above-named Corporation for an Order amending the Order of the Board issued on and dated Monday, the 13th day of March, A.D. 1911, and upon reading the Notice of Application, the Affidavit of John Henderson, the Clerk of the said Corporation, the Notice to the said Township of the said Application and the Affidavit of Service thereof.

2. The Board orders that the said Order of Monday, the 13th day of March, A.D. 1911, be and the same is hereby amended by adding to Paragraph 3 thereof the following clauses:—

(*h*) The Corporation of the City of Ottawa may levy and collect rates and taxes for the year 1911 upon and from the ratepayers resident or owning property in the said territory, and the rate to be levied and imposed in the said territory shall be the same as the rate to be levied and imposed in the remainder of the said city."

(*i*) The last revised assessment roll of the said Township of Nepean shall be used for the preparation of that part of the Collector's roll of the City of Ottawa which shall relate to the said territory, and the said part of the said Collector's roll shall be based upon the last revised assessment roll of the said Township of Nepean."

(*j*) The Voters' List, prepared for the Municipal Election held in the Township of Nepean for the year 1911, shall be used for the said territory at any Municipal Election which may be held in the City of Ottawa, or in Victoria Ward thereof, and for all votings that may take place on By-laws for the creation of debts submitted for the assent of the electors of the City of Ottawa during the year 1911."

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

Thursday, the Thirtieth day of March, A.D. 1911.

1. Upon the application of the above-named Corporation for an Order for the annexation to the City of Ottawa of that portion of the Township of Nepean, in the County of Carleton, adjacent to the City of Ottawa, hereinafter described, and upon reading the Notice of Application, the Resolution of the Municipal Council of the said Corporation declaring that it is expedient that the said portion of the said Township should be annexed to the City of Ottawa, the Petition of the majority of the ratepayers in the said portion of the said Township praying that such portion may be added to the said City, the Notice to the said Township of the said Resolution and Petition and the Affidavit of Service thereof on the Township Clerk and the said Township agreeing:

2. The Board orders that that portion of the Township of Nepean, in the County of Carleton, adjacent to the City of Ottawa, bounded as follows, that is to say:—

On the north by the centre of the Ottawa River, on the south by the present northerly boundary of the City of Ottawa, on the east by the present westerly boundary of the City of Ottawa, and on the west by the westerly side of Fifth Street, as shewn on plans prepared by Robert Sparks, P.L.S., dated April 27th, 1872, W. R. Thistle, P.L.S., dated November 9th, 1872 and J. B. Lewis, O.L.S., dated 23rd May, 1908, all of which plans are recorded in the registry Office for the City of Ottawa; be and the same is hereby annexed to the City of Ottawa.

3. The Board further orders:—

(*a*) That after annexation, the said territory shall form part of Victoria Ward in the said city.

(*b*) That the said territory shall be supplied with water from the Waterworks System of the said City upon the same terms and conditions as water is now supplied in the said City.

(*c*) That the City of Ottawa shall assume all municipal indebtedness for which the said territory is now liable, and shall pay to the said Township such part (if any) of the debts of the said Township as may be just and shall be entitled to receive from and be paid by the said Township the value of the interest which at the time of annexation the said territory had in the property and assets of the said Township in accordance with the provisions of Section 58 of "The Municipal Act."

(*d*) That the said territory shall be given police and fire protection.

(*e*) That the said territory shall be lighted by the Municipal Electric Plant of the City of Ottawa.

(*f*) That the said territory shall be drained on the local improvement system of taxation now in practice in the City of Ottawa as and when recommended by the Local Board of Health of the said City.

(*g*) That the Municipal Council of the City of Ottawa may grant a fixed assessment on lands or buildings, or both, in such cases as it may deem proper for a period not exceeding twenty (20) years to any industry which may hereafter be established within the said territory, the site of which shall not be more than one thousand (1,000) feet distant from the tracks of any railway.

(*h*) The Corporation of the City of Ottawa may levy and collect rates and taxes for the year 1911 upon and from the ratepayers resident or owning property in the said territory, and the rate to be levied and imposed in the said territory shall be the same as the rate to be levied and imposed in the remainder of the said City and the said Corporation shall account to the Township of Nepean for such proportion of the rates and taxes for the said year as the said Township would have been entitled to levy and collect had this annexation not taken place at such rate as the said Township may levy and impose within its remaining territory for the year 1911.

(*i*) The said Corporation of the City of Ottawa shall also collect all arrears of taxes for the year 1910 and prior years (if any) uncollected by the Township of Nepean in the said territory and account therefor to the said Township.

(*j*) The last Revised Assessment Roll of the said Township of Nepean shall be used for the preparation of that part of the Collector's Roll of the City of Ottawa for the year 1911 which shall relate to the said territory, and the said part of the said Collector's Roll shall be based upon the last revised Assessment Roll of the said Township of Nepean.

(*k*) The Voter's List, prepared for the Municipal Election held in the Township of Nepean for the year 1911, shall be used for the said territory at any Municipal Election which may be held in the City of Ottawa, or in Victoria Ward thereof, and for all votings that may take place on By-laws for the creation of debts submitted for the assent of the electors of the City of Ottawa during the year 1911.

4. And the Board further orders that this Order shall take effect as of the 13th day of March, A.D. 1911, and that the Orders of the Board of respectively the 13th and 21st day of March, A.D. 1911, shall be and the same are hereby rescinded.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

Approved 28 March, 1911.
(Sgd.) W. GREENE,
for Nepean.

(Seal.)

PROCEDURE FILE No. 913.

Application by the Town of Renfrew, under 8 Edw. VII., c. 51, sec. 3, for validation of By-law 527 amending By-law 491, ($22,000 for Waterworks extensions.)

March 14. Application and material filed, considered and approved.
March 14. Order.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

Tuesday the Fourteenth day of March, A.D. 1911.

Before James Leitch, Esq., K.C., Chairman.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Thomas W. McGarry, Esquire, Solicitor for the Applicants, the certified copy of the said By-law and the material filed on the Application for validation of By-law No. 491 of the said Town.

The Board orders that the said By-law No. 527 of the said Corporation, intituled "By-law No. 527. A By-law to amend By-law No. 491 by striking out enacting clause No. 4 and inserting the following:—

Whereas it is deemed advisable to amend By-law No. 491 by striking out enacting clause No. 4 and inserting instead thereof the following clause:

No. 4. The debentures shall be issued all at one time and within two years of the passing of this By-law and the money realized from the sale thereof shall be applied for the purpose of paying for the said extensions and improvements of the said Waterworks System," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Renfrew, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures to be issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE No. 914.

Application by the Town of Waterloo, under 6 Edw. VII., c. 34, sec. 21, for approval of Gas Extension By-law 393, ($6,000.)

March 16. Application and material filed, considered and approved, subject to filing Report for 1910 on Gas Plant.

May 26. Order.

Upon the application of the above-named Corporation, and upon reading the Notice of Application filed by A. B. McBride, Esquire, Solicitor for the Applicants, the certified copy of the said By-law, the affidavits of Aloyes Bauer, Chairman of the Board of Water and Light Commissioners, and Ford Stanley Kumpf, Clerk of the said Town, and the other material filed:

The Board orders that the said By-law No. 393 of the Municipal Corporation of the Town of Waterloo, intituled "Town of Waterloo By-law No. 393. To authorize the issue "of debentures for $6,000.00 to pay the expense of improvements to the gas plant and extensions of gas mains in the Town of Waterloo," be and the same is hereby approved.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE No. 915.

Application by Town of Waterloo, under 6 Edw. VII., c. 34, sec. 31, for approval of Waterworks Extension By-law 394. ($6,000.)

March 16. Application and material filed, considered and approved, subject to filing Report for 1910 on Waterworks.

May 26. Order.

Upon the application of the above-named Corporation, and upon reading the Notice of Application filed by A. B. McBride, Esquire, Solicitor for the Applicants, the certified copy of the said By-law, the affidavits of Aloyes Bauer, Chairman of the Board of Water and Light Commissioners, and Ford Stanley Kumpf, Clerk, of the said Town, and the other material filed.

The Board orders that the said By-law No. 394 of the Municipal Corporation of the Town of Waterloo, intituled "Town of Waterloo. By-law No. 394. To authorize the issue of debentures for $6,000.00 to pay the expense of extensions of waterworks mains in the Town of Waterloo," be and the same is hereby approved.

(Sgd.) JAMES LEITCH,

Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE No. 916.

Application by the City of Peterborough, under 2 Edw. VII., c. 59, and 4 Edw. VII., c. 64, for approval of By-law 1586, ($10,000 for Waterworks Extensions).

March 18. Application and material filed.

March 20. Application and material considered and approved. Order.

Upon the application of the said Corporation and upon reading the Notice of Application filed by E. H. D. Hall, Esquire, Solicitor for the Applicants, the certified copy of the said By-law and the affidavits of Thomas Francis Matthews, Chairman, and Simon Robert Armstrong, Secretary-Treasurer of the Water Commissioners, of the said City, filed;

The Board orders, under and in pursuance of the provisions of Chapter 59 of the Statutes of the Province of Ontario passed in the second year of the reign of His late Majesty, King Edward VII., as amended by Chapter 64 of the said Statutes passed in the fourth year of the reign of His late Majesty, King Edward VII., that the said By-law No. 1586 of the Municipal Corporation of the City of Peterborough, intituled "By-law Number 1586. A By-law to authorize the borrowing of ten thousand dollars to pay for extensions made in the Waterworks System of the City of Peterborough in the year 1910." be and the same is hereby approved.

(Sgd.) JAMES LEITCH,

Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE No. 917.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Rockwood & Oustic Rural Telephone Company (not incorporated).

March. 18. Agreement filed.

March 28. Order.

PROCEDURE FILE No. 918.

Application by the Town of Sandwich, under 8 Edw. VII., c. 51, for validation of By-law 399 and Debentures ($28,707.83, for sewers).

March 18. Application and material filed.

March 20. Application and material considered and approved.

March 20. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Affidavits of E. R. North, Clerk, and Eugene Breault, Mayor, of the said Town, the certified copy of the said By-law Number 399, the certified copy of the By-law Number 383, By-law Number 386, By-law Number 377 and By-law Number 393, and the other material filed,

The Board orders that the said By-law Number 399 of the said Corporation, intituled "By-law Number 399. A By-law relating to the construction of certain sewers and to authorize the issue of debentures for the sum of $28,707.83 to pay for the same secured by local special rates and general rates of the Town of Sandwich," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Sandwich, and declaring the same valid and binding and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of, and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE No. 919.

Application by the City of Hamilton, under 6 Edw. VII., c. 34, sec. 21, for approval of Waterworks Extension By-law 1108, ($113,800).

March 18. Application and material filed.

March 20. Application and material considered and approved.

March 20. Order.

Upon the application of the above-named corporation, and upon reading the Notice of Application filed by F. R. Waddell, Esquire, Solicitor for the Applicants, the verified copy of the said By-law, the Declarations of Samuel H. Kent, Clerk, William R. Leckie, Treasurer, George H. Lees, Mayor, and Andrew F. Macallum, Engineer, of the said City, and the other material filed,

The Board orders that the said By-law No. 1108 of the Municipal Corporation of the City of Hamilton, intituled "By-law No. 1108. For the Issue of Debentures for $113,800 for Extending and Improving the Waterworks," be and the same is hereby approved.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 920.

Application by the Town of Haileybury, under 8 Edw. VII., c. 51, for validation of By-law 260 and debentures ($5,000 for High School purposes).

March 22. Application and material filed, considered and approved. Board directs that Order issue on the expiration of the thirty days mentioned in 8 Edw. VII., c. 51, sec. 3, ss. 2.

April 10. Order issued.

Upon the application of the said Corporation, and upon reading the Notice of Application, the affidavits of Theodore Henry Connor, Clerk, and Nelson R. Green, Mayor, of the said Town, the certified copy of the said By-law No. 260, and the other material filed,

The Board orders that the said By-law No. 260 of the said Corporation, intituled "By-law No. 260. A By-law authorizing the issue of debentures to the amount of Five Thousand Dollars ($5,000) for permanent High School improvements," be, and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1909," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Haileybury, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Seal)

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 921.

Application by the Bell Telephone Company, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Ardtrea Telephone Association (not registered).

March 23. Agreement filed.

April 3. Order.

PROCEDURE FILE 922.

Application by the Town of Lindsay, under 4 Edw. VII., c. 22, sec. 11, for approval of Interest Increase By-law (4 per cent. to 4½ per cent. on $55,000 for Public School purposes. By-law 1168).

March 25. Application filed, letter for proofs in support.

May 18. Further material filed, considered and approved. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. McLaughlin, Peel, Fulton & Stinson, Solicitors for the Applicants, the certified copy of each of the said By-laws, the Affidavits of Newton Smale, Member of the Municipal Council, Duncan Ray, Clerk, and Peter Kennedy, Treasurer, of the said Town, and the other material filed.

The Board orders that the said By-law No. 1215 of the Municipal Corporation of the Town of Lindsay, intituled as follows: "By-law Number 1215. A By-law to amend By-law Number 1169 and to provide for the payment of an increased rate of interest on the debenture debt created thereunder, and for levying the required rates and to provide for a different mode of payment of said debenture debt," be, and the same is hereby approved under and in pursuance of 4 Edw. VII., Chapter 22, Section 11 (Ontario), and 7 Edw. VII., Chapter 40, Section 8 (Ontario).

(Signed JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 923. (P. F. P. 72.)

Application by City of Toronto for approval of Plans for Civic Car Lines on Gerrard Street and Coxwell Avenue from Greenwod Avenue to Main Street.

March 25. Application and Plans and Profiles filed.

April 8. Board appoints 18th inst., at 2.30 p.m., to hear Applicants *re* Jurisdiction, etc.

April 25. Hearing pursuant to adjournment. Judgment reserved.

May 8. Judgment delivered postponing approval of Plans until terms submitted to Board, under 3 Edw. VII., c. 19, sec. 569, ss. 1.

June 23. Estimates having been filed and conisdered, judgment delivered approving Plans herein.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD RE CIVIC CAR LINES.

Opinion of the Board.

This is an application by the City of Toronto for the approval by the Board of plans for the construction of civic car lines on Gerrard Street and Coxwell Avenue from Greenwood Avenue to Main Street, and on St. Clair Avenue from Yonge Street to the Grand Trunk Railway crossing.

By-law No. 5626, passed on the 23rd of January last, under the authority of section 569 of The Consolidated Municipal Act of 1903, and amendments, provides for the building, equipping, maintaining and operating of street railways along and over such streets of the City, and subject to and upon such terms as the Ontario Railway and Municipal Board may approve. Subsection 5 of the amending Act of 1906 provides that in addition to the publication required in the case of a by-law authorizing the issue of debentures, which requires the assent of the electors before the final passing thereof, there shall be published, along with a copy of such by-law and for the same period, the estimates of the intended expenditures.

All that the Board has before it is a plan and profile showing the location of the lines on the above streets. One of the plans does not show the gauge or the

radius of the curves. Before the Board can approve of the streets selected by the City for the new lines, or the terms upon which the new lines are to be built, or fix the terms if any should be required, we will require particulars from the City of the whole scheme for building, equipping, maintaining and operating the civic car lines. We will require to know all the streets the City intends to use for the lines, the mileage, the kind of rails, the character of the construction, the kind of car barns and repair shops, the number and kind of cars to be operated, an estimate of the cost of construction, operation and maintenance, and an estimate of the revenues to be derived from the enterprise.

We suppose that before submitting the by-law to the ratepayers to raise $1,157,293 for the purpose of building and equipping a street railway and laying the permanent pavements that it will necessitate, a well-considered scheme was worked out with a careful estimate of the cost. We will require to know what that scheme is and how the estimated cost was arrived at.

It was argued by Mr. Drayton that the Board were not concerned with the cost of building, equipping and maintaining the lines, or as to whether or not they woud be a financial success: that Parliament when incorporating railway companies did not require any data from which they could form an opinion as to whether or not the enterprise would be a paying concern. That is quite true as far as private companies are concerned, but this distinction must be borne in mind between a railway enterprise which is to be financed with private capital and an enterprise which is to be financed by the taxes of people. In this case no estimates were published. The people were called upon to vote $1,157,293 for the building, equipping, maintaining and operating the street railway upon certain streets to be selected by the Council. The streets were not even mentioned in the by-law upon which the lines were to be laid and operated. No estimates of the cost of building, equipping, maintaining or operating the lines were published. The people had no means of forming an intelligent opinion either as to the cost of the new lines, or as to whether or not the lines would be a paying enterprise.

Under these circumstances we think that the law requires that the Board should be furnished with the information that we ask, before we approve any of the streets, or any plan or profile of the lines. We do not think that this scheme should be approved by the Board piecemeal, without knowing what the whole scheme is. It is not necessary yet for the Board to determine whether or not the scheme should be approved, if it becomes clear to the Board that it will unquestionably turn out a financial failure. We are under the impression that if the electors, having before them particulars of the scheme, estimates in the detail of the cost, and an opportunity of forming an opinion as to the probable success or failure of the enterprise, deliberately vote in favour of a scheme that will entail a loss, the Board should not stand in the way of the well-considered policy of the electors.

The Board are anxious to facilitate the City as much as possible in this enterprise, but the requirements of the law as we understand it must be complied with. The Board will await the information that we require before finally determining this matter.

Dated at Toronto the Sixth day of May, 1911.

(Signed) James Leitch, Chairman.
(Signed) A. B. Ingram, Vice-Chairman.
(Signed) H. N. Kittson, Commissioner.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

IN THE MATTER OF THE CITY OF TORONTO—RE CIVIC CAR LINES.

Second Opinion of the Board.

In our opinion in this matter of the 6th of May, 1911, we declined to approve of the City's plans and profiles for the construction of car lines on Gerrard Street and Coxwell Avenue from Greenwood Avenue to Main Street, and on St. Clair Avenue from Yonge Street to the Grand Trunk Railway crossing, until the City furnished us with particulars of the whole scheme for building, equipping, maintaining and operating the civic car lines. We stated that we required to know all the streets the City intended to use for the lines, the mileage, the kind of rails, the character of the construction, the kind of car barns and repair shops, the number and kind of cars to be operated, and an estimate of the cost of construction, operation and maintenance, and an estimate of the revenue to be derived from the enterprise. In other words, we wanted from the City a well-considered plan and a careful estimate of the cost of the new lines, so as to be sure, among other things, that sufficient money had been voted by the ratepayers for the construction and operation of the civic street car system. In our view the enterprise upon which the City had embarked was of such serious import to the ratepayers in general, and to those in the annexed territory in particular that the Board could not be too vigilant or too careful of the rights of the people. If we have been exacting we have no apology to offer.

The City have complied with our demands for particulars and details of the scheme. From the estimates submitted to us it looks as if the new lines might pay, but it is not necessary for the Board, at this stage, to determine this question. We do know that there are a large number of people in the territory recently annexed to the City that require street cars and should have them. The City are receiving a large sum of money each year from the Toronto Railway Company as the City's share of the gross receipts from the street railway traffic in the older portion of the City. This large yearly revenue received by the City is paid into the City Treasurer and goes to reduce the taxes of the City at large. It is only fair that the ratepayers, who have street cars and who profit by the revenue, should spend some share of that revenue in providing street car services for their less happily circumstanced fellow-citizens.

We think we should facilitate the City in doing justice to the people in the annexed districts by providing them with street car transit. We will therefore approve of the plans and profiles submitted by the City, and thus enable the City to proceed with the enterprise.

The City will have to pay $20 for stamps on the formal order.

Dated at Toronto this 23rd day of June, 1911.

(Signed) JAMES LEITCH,
Chairman.

(Signed) A. B. INGRAM,
Vice-Chairman.

(Signed) H. N. KITTSON,
Commissioner.

PROCEDURE FILE No. 924. (P. F. P. 73).

Application by the City of Toronto for approval of Civic Street Railway line on St. Clair Avenue, from Yonge St. to the Grand Trunk Railway tracks.

Mar. 27. Application and Plan, Profile and Book of Reference filed.

April 8. Board appoints 18th inst., at 2.30 p.m., to hear Applicants *re* Jurisdiction, etc.

April 25. Hearing, pursuant to adjournment. Judgment reserved.

May 8. Judgment delivered postponing approval of Plans, etc., until terms, etc., submitted to Board, under 3 Edw. VII., c. 19, sec. 569, ss. 1.

June 23. Estimates having been filed and considered, Judgment delivered approving Plan of above line. (See P. F. 923.)

PROCEDURE FILE No. 925.

Application by United Townships of Drury, Denison and Graham, under 8 Edw. VII., c. 51, for validation of By-law 102, and Debentures ($850.00 for Public School Building).

March 28. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, filed by Joseph Fowler, Esquire, Barrister, the affidavit of Reginald B. Colloton, Clerk of the said Townships, the certified copy of the said By-law No. 102 and the other material filed.

The Board orders that the said By-law No. 102 of the said Corporation, intituled "By-law No. 102, a By-law to provide for the raising of $850.00 by way of Debenture for the purpose of paying for the erection of a School House in Public School Section No. 3 of the Union Municipality of Drury, Denison and Graham," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Townships of Drury, Denison and Graham, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,

(Seal) Chairman of The Ontario Railway and Muncipal Board.

PROCEDURE FILE No. 926.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with Jno. S. Todd and Robert E. Darling, M.D.

March 29. Agreement filed.

April 10. Order.

Procedure No. 927.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with The Bromley Telephone Association (not incorporated).

March 30. Agreement filed.

April 10. Order.

Procedure File No. 928.

Re Tariff of Fees under sections 60 and 61 of The Ontario Railway and Municipal Board Act, 1906 (cap. 31).

March 28. Board orders new Tariff of Fees to be promulgated under said sections of said Act.

The Ontario Railway and Municipal Board.

Tariff of Fees.

The Ontario Railway and Municipal Board orders and directs that the following sums in law stamps shall be paid on the following orders, and the following fees in every application or matter coming before the Board:—

In contentious matters requiring a hearing, there shall be paid the sum of $15.00 for each day or fraction thereof over one-half day, and the sum of $10.00 for half a day or fraction thereof occupied by the hearing, in law stamps.

On orders under The Municipal Securities Act, 1908, for validating By-laws and Debentures, the following sums shall be paid in law stamps:—

	Law Stamps.
Where the issue of Debentures does not amount to over $10,000	$15 00
Over $10,000 and up to $15,000	20 00
Over 15,000 and up to 20,000	25 00
Over 20,000 and up to 25,000	30 00
Over 25,000 and up to 30,000	35 00
Over 30,000 and up to 40,000	40 00
Over 40,000 and up to 50,000	45 00
Over 50,000 and up to 60,000	50 00
Over 60,000 and up to 70,000	55 00
Over 70,000 and up to 80,000	60 00
Over 80,000 and up to 90,000	65 00
Over 90,000 and up to 100,000	70 00
Over 100,000 and up to 110,000	75 00
Over 110,000 and up to 120,000	80 00
Over 120,000 and up to 130,000	85 00
Over 130,000 and up to 140,000	90 00
Over 140,000 and up to 150,000	95 00
Over 150,000 and up to 160,000	100 00
Over 160,000 and up to 170,000	105 00
Over 170,000 and up to 180,000	110 00
Over 180,000 and up to 190,000	115 00
Over 190,000 and up to 200,000	120 00

The following sums shall be paid in law stamps on the following orders:—

On Orders for Annexation of Territory ..... Mun. Act, Sec. 1, Cap. 34, 1906.	$10 00
On Orders for approval of By-laws for extension of Waterworks, Electric Light or Gas Works ..... Mun. Act, Sec. 21, Cap. 34, 1906.	10 00
On Orders for approval of By-laws increasing the rate of interest on debentures. Mun. Act, Sec. 11, Cap. 22, 1904.	5 00
On Orders for approval of By-laws for stopping up, leasing or selling part of a road along the bank of any river or stream or along the shore of any lake.. Mun. Act, Sec. 632, 1903.	5 00
On Orders approving Railway Companies' Public By-laws and Rules ..... Ry. Act, Sec. 153, Cap. 30, 1906.	5 00
On Orders approving Railway Companies' Tolls and Tariffs ..... Ry. Act, Sec. 169, Cap. 30, 1906.	5 00
On Orders approving Railway Companies' Examiner of Motormen ..... Ry. Act, Sec. 221, Cap. 30, 1906.	1 00
On Orders approving agreements under the Ontario Telephone Act, 1910	5 00
On Orders for approving and certifying plans, specifications, drawings and stress sheets for bridges, viaducts and tunnels, for each plan, duplicate and copy, besides experts' fees ..... Ry. Act, Sec. 89, 1906.	2 00
On Orders for approving and certifying plans for crossing a railway with high power electric wires, on each plan, duplicate and copy, besides experts' fees. Ry. Act, Sec. 56, 1906.	2 00
For Approving Plan, under "The City and Suburbs Plans Act" (in non-contentious cases)	5 00

The above sums payable in law stamps will be in addition to the sum required to be paid in stamps when a hearing is necessary.

On all other orders there shall be paid such sum as may be ordered by the Board, or a Member thereof, in law stamps.

For Copies of Documents under 6 Edward VII., Cap. 31, sec. 60, there shall be paid ten cents for each 100 words, and fifty cents for each certificate.

For Copies of Maps or Plans, Applicant shall pay Engineer's or Expert's fees therefor, and fifty cents for each certificate.

Dated at Toronto, the 28th day of March, 1911.

(Signed) James Leitch,
Chairman.
(Signed) A. B. Ingram,
Vice-Chairman.
(Signed) H. N. Kittson,
Commissioner.

(Seal)

Procedure File No. 929.

Application by the Town of Clinton, under 6 Edw. VII., c. 34, sec. 21, for approval of Waterworks Extension By-law No. 4, for 1911. ($5,000.00.)

March 30. Application and material filed. By-law returned for correction.

April 4. Corrected By-law received. Application considered and approved.

Order.

Upon the application of the above named Corporation, and upon reading the Notice of Application filed by W. Brydone, Esquire, Solicitor for the Applicant,

the certified copy of the said By-law, the affidavits of Albert T. Cooper, Chairman of the Waterworks Committee, Donald L. Macpherson, Clerk, and Jacob Taylor, Mayor, of the said Town, and the other material filed.

The Board orders that the said By-law No. 4 of the Municipal Corporation of the Town of Clinton, intituled "By-law No. 4 for 1911 of the Town of Clinton, a By-law to provide for the extension of the Waterworks System," be and the same is hereby approved.

(Seal) (Signed) A. B. Ingram,
Vice-Chairman of The Ontario Railway and Municipal Board.

Procedure File No. 930.

The Toronto Railway Company

vs.

Toronto.

Application for approval of Plans of, and leave to construct, Line on East side of Spadina Avenue, South of King Street.

April 3. Application filed.

May 12. Hearing. Board directs that Application be amended to conform with and cite 10 Edw. VII., c. 81, sec. 3.

Hearing adjourned to 19th inst., at 2.30 p.m. at Board's Chambers.

May 14. Amended Application filed.

May 19. Hearing pursuant to adjournment. Judgment reserved.

June 1. Judgment delivered.

The Ontario Railway and Municipal Board.

Between The Toronto Railway Company, Applicant, and The Corporation of the City of Toronto, Respondent (*re* Spadina Avenue and Intersections).

Opinion of the Board.

This is an application for the permission and approval of the Board for the construction of street railway lines, intersections, curves and connections, on the following streets in the City of Toronto:—

(*a*) Intersection work at the corner of Spadina Avenue and Front Street.

(*b*) Intersection work at the corner of Queen Street and Spadina Avenue.

(*c*) Intersection work at the corner of College Street and Spadina Avenue.

(*d*) Intersection work at the corner of Bloor Street and Ossington Avenue.

(*e*) A street railway on the east side of Spadina Avenue South of King Street, with the necessary curves and connections.

There is no objection on the part of the City to the intersection work at the corners of Queen and Spadina, College and Spadina, and Bloor and Ossington Avenue. The Board accordingly give their permission and approval for the construction of these intersections.

The City and the Canadian Pacific Railway Company, whose Counsel appeared on the Application, object to the intersection at the corner of Spadina Avenue and Front Street, and to the extension on the East side of Spadina south of King. The Canadian Pacific Railway Company, through their Counsel, Mr. MacMurchy, on the application, and by letter, urge that the Board should not dispose of this application, for the reason that the Canadian Pacific Railway Company has filed an application with the Dominion Board of Railway Commissioners for leave to cross Front Street and Spadina Avenue at their intersection, with a lead track, to reach the Company's proposed new yards and sheds at Simcoe and King Streets. The Canadian Pacific Railway's application is for a level crossing at Spadina Avenue. This is opposed by the City.

The City join the Canadian Pacific Railway Company in urging the Board not to permit the Toronto Railway Company to lay their tracks at the point in question until the Dominion Board of Railway Commissioners have had an opportunity of considering how best to deal with the whole question of grade separation at the point in question, and that no change should be made in the status of the parties in the meantime. The Board acquiesces in this.

The questions involved between the City and the Toronto Railway Company in reference to the streets, which the Company require for the construction of their lines, have been so fully discussed by the Board in several opinions, that it is unnecessary to refer to them again at length. It is sufficient to say that it was settled by the Board's Order of the 18th of December, 1908, and by the Appeal therefrom to the Court of Appeal and the Privy Council, that the Company has the right to select the streets which they require for their tracks. Since that decision, the Legislature has intervened and enacted the Ontario Railway Amendment Act, 1910. Cap. 81. Section 3 of that Act provides:—

"3.—(1) A railway company shall not, without having first obtained the permission and approval of the Ontario Railway and Municipal Board, begin the construction of its railway or of any extension of it upon any highway or part of a highway upon which it has authority to construct or extend its railway, and the Board shall have power to withhold its permission and approval whenever it is of opinion that it has not been made to appear that the construction or extension upon such highway or part of a highway is necessary or convenient for the public service, or whenever in the opinion of the Board it is not in the public interest that the railway should be constructed or extended upon such highway or part of a highway. (2) This section shall apply to a street railway."

Under this Statute the Board has power to withhold its permission and approval of the construction or extension of the Company's lines on a highway or part of a highway, whenever it is of opinion that such extension is not necessary or convenient for the public service, or whenever in the opinion of the Board it is not in the public interest that the railway should be constructed or extended upon such highway or part of a highway.

The Board's Engineer has reported, after a careful inspection of the location and an investigation of the conditions, that in view of the fact, that there are upwards of 5,000 employees employed in 40 factories and other places of industry in the neighborhood of the section in question, that require street cars, and in view of the fact that the intersection at Front and Spadina will facilitate the handling of crowds during the Exhibition, as soon as the Company can procure an Eastern entrance to the Exhibition grounds, that he is of opinion that the public interest demands that this intersection and extension should be constructed.

The interests of the Toronto Railway Company in the streets in question, for the purposes of their railway, are as much entitled to protection as the interests of the man in the street with a wagon or other vehicle. It is the intent and design of this Board to do nothing which would prejudice the status of the parties, while the Dominion Board of Railway Commissioners are considering the whole question of grade separation at the point in question. We do not want to prejudice the rights of the Toronto Railway Company, and at the same time we do not want to give them any advantage they are not entitled to, nor do we want to embarrass the solution of the problem which the Dominion Board has to solve, by permitting the Toronto Railway Company to complicate the situation by the construction of tracks before the question is settled. We think that the disposition of the case that will protect the interests of all parties, is to declare that it is necessary for the public service and in the public interest that this intersection and extension should be built, but that the Toronto Railway Company shall not proceed with the work of construction until the question of grade separation has been settled by the Dominion Board, nor until a new plan of the intersection and extension has been filed with and approved of by this Board. We think this determination will meet the justice of the case.

The Board makes no order as to costs, but the Applicants, the Toronto Railway Company, will require to pay $20 for stamps on the formal Order.

Dated at Toronto the First day of June, 1911.

(Signed) James Leitch,
Chairman.

(Signed) A. B. Ingram,
Vice-Chairman.

(Signed) H. N. Kittson,
Commissioner.

Procedure File No. 931.

Application by Town of Sudbury, under 8 Edw. VII., c. 51, for validation of By-law 260, and the Debentures thereunder ($3,616.66) for Granolithic Sidewalks.

April 5. Application and material filed.

April 6. Application and material considered and approved. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Clary & Buchanan, Solicitors for the Applicants, the affidavit of George Elliott, Clerk of the said Town, the certified copy of the said By-law and other material filed,

The Board orders that the said By-law No. 260 of the said Corporation, intituled "By-law Number 260. A By-law relating to the construction of certain granolithic walks in the Town of Sudbury, and to authorize the issue of debentures for the sum of $3,616.66, to pay for the same," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Sudbury, and declaring the same valid and binding, and that its validity is not open to question in any Court on

any ground whatever, and that the debentures to be issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,

(Seal.)

Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE No. 932. (P.F.P. 82.)

Application by the City of Toronto, under 6 Edw. VII., c. 34, sec. 21, for approval of Waterworks Extension By-law ($793,128.00).

April 5. Application and material filed.

April 26. Appointment for Hearing issued for Tuesday, May 9th, 1911, at 2.30 p.m., in the Board's Chambers.

May 9. Hearing judgment reserved.

June 9. Plan of extensions filed. (See P.F.P. 82.)

June 15. Application granted. Order to issue on 17th inst.

June 17. Order issued.

Upon the application of the above-named Corporation, upon consideration of the Plans, and upon reading the Notice of Application, the Statutory Declarations of Richard Theodore Coady, Treasurer, and George Henry Mitchell, Chief Audit Clerk of the Revenue Branch of the Waterworks Department, of the said City, a verified copy of the said By-law and the other material filed,

The Board orders that the said By-law of the Municipal Corporation of the City of Toronto, intituled "No. —. A By-law to provide for the issue of City of Toronto General Consolidated Loan Debentures" to the amount of $793,128, to defray the cost of laying Revenue Mains and House Services on certain streets for a supply of water to consumers," be and the same is hereby approved.

(Sgd.) JAMES LEITCH,

(Seal.)

Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE No. 933.

The Toronto Railway Company

vs.

City of Toronto.

Application for approval of Plans of and leave to construct new intersection work at certain corners, &c.

April 5. Application filed.

April 28. Board appoints May 12th, at 2.30 p.m., at its Chambers, for Hearing.

May 12. Hearing. Board directs that application be amended to conform with and cite 10 Edw. VII., c. 81, sec. 3, and subject to this application allowed except as to intersections on Spadina Ave., at corners of King and Front Streets; as to these latter Hearing adjourned to 19th inst., at 2.30 p.m., at Board's Chambers, to take evidence.

May 14. Amended application filed. (See P.F. 930).

May 19. Hearing pursuant to adjournment. Judgment reserved, pending evidence to be given by C. H. Rust, City Engineer.

June 1. Judgment delivered. (See P.F. 930).

Procedure File No. 934.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, for approval of Agreement with the Township of St. Vincent.

April 6. Agreement filed.

April 18. Letter to Company that Board will not approve Agreement unless Clause 10 A and 10 B be struck out.

Procedure File No. 935.

Application by the Township of Balfour, under 8 Edw. VII., c. 51, for validation of By-law No. 7, and the Debentures thereunder, ($1,000 for school site and building).

April 6. Application and material filed.

April 7. Application and material considered. Letter as to necessary amendments to By-law.

May 11. Amending By-law filed, considered and approved.

May 11. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Clary & Buchanan, Solicitors for the Applicants, the affidavit of J. Alexander Bastien, Clerk of the said Township, the certified copy of each of the said By-laws and the other material filed,

The Board orders that the said By-law No. 7, intituled "By-law No. 7. A By-law to provide for the raising of $1,000.00 by way of debentures to pay for a school site and for the erection of a schoolhouse in Union School Section Number Three of the Townships of Balfour and Dowling," as amended by By-law No. 12, intituled "By-law Number 12. A By-law to amend By-law Number 7 of the Township of Balfour," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that certificates be granted approving the said By-laws of the Municipal Corporation of the Township of Balfour, and declaring the same valid and binding, and that their validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-laws be also approved, and that the same be certified as provided by the said Act.

(Sgd.) James Leitch,
Chairman of The Ontario Railway and Municipal Board.

Procedure File No. 936.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with C. T. Noble, M.D.

April 8. Agreement filed.

April 18. Letter to both parties that Board will not approve agreement unless clause 10A be struck out.

PROCEDURE FILE No. 937.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with Alex. Dobson.

April 11. Agreement filed.

April 20. Notice to Parties that Board will not approve of Clause 10A or 10B of Agreement.

PROCEDURE FILE No. 938.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of agreement with The Lake Simcoe Rural Telephone Company (not incorporated).

April 12. Agreement filed.

April 20. Notice to Parties that Board will not approve of Clause 10A of Agreement.

PROCEDURE FILE No. 939.

Application by the Township of Willoughby, under sec. 632 of the Consolidated Municipal Act, 1903, for approval of By-law 436, to close Road as therein described.

April 13. Application filed. Letter for map and proofs.

June 1. Map and proofs filed, considered and approved.

June 1. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Affidavits of Donald Doll, Reeve, and John A. Plyley, Clerk, of the said Township, the certified copy of each of the said By-laws and the other material filed,

The Board orders that the said By-law No. 436, intituled "By-law No. 436 of the Township of Willoughby. A By-law to close up and sell a certain road allowance in the Township of Willoughby," and the said By-law No. 871, intituled "By-law No. 871. A By-law to confirm By-law No. 436 of the Township of Willoughby," be and the same are hereby approved, under and in pursuance of Subsection 11 (*a*) of Section 640 of "The Consolidated Municipal Act, 1903," and Clause (*e*) of Section 53 of "The Ontario Railway and Municipal Board Act, 1906."

(Sgd.) JAMES LEITCH,

(Seal.)

Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE No 940.

Application by the City of Fort William, for approval of Plans, &c., of Reinforced Concrete Arch Bridge over the Neebing River.

April 18. Application and Plans &c., filed. (Plans on P.F.P. 75).

April 24. Specifications filed and referred to Board's Engineer.

April 27. Engineer's Report received and considered. Plans &c., approved.

April 27.

The Chairman of The Ontario Railway and Municipal Board, Toronto:

SIR,—I beg to submit my report on the Neebing River reinforced concrete arch at Fort William for the Port Arthur & Fort William Electric Railway, of which the drawings were submitted by your Board to me a few days ago.

This arch is 50 feet span with a thickness of 18 inches at the crown and has been designed to carry a width of roadway of 33 feet and two sidewalks 5′ 9″ each. The roadway has on it the two tracks of the above-named railway. The arch has an earth filling on it of 2′ 6″ at the crown and has been calculated for a load of 150 lbs. per square foot for live load, or taking a strip one foot wide, a live load of 150 lbs. per lineal foot. Your specification calls for 40-ton cars, which give 227 lbs per lineal foot. There are two lines of steel bars through the length of arch, one near the top or extrados, and the other near the bottom or intrados, each having three-quarter square inch area.

I calculate the curve of pressure for (*a*) the dead load only; (*b*) dead load and a live load of 227 lbs. (40-ton car) per lineal foot two-thirds over the bridge; (*c*) dead load and same live loading one-third on centre: (*d*) dead load and live load all over bridge.

Case C seems to bring the curve nearest the intrados, so figuring the moment of this case, I get a compressive stress on the concrete of 134 lbs. per square inch, and a tensile stress on the steel of 1,648 lbs. Taking steel at 14,000 lbs. per square inch, three-quarter square inch would give 10,500 lbs., which is greater than 1,648 lbs.

I therefore have to report that the calculations are in every way satisfactory not only for the loading of 150 lbs. allowed for live load by the Railway Co., but for your 40-ton car loading.

I submit a diagram showing the various curves obtained.

Yours truly,

(Sgd.) H. W. MIDDLEMIST.

PROCEDURE FILE No 941.

Application by the Town of New Liskeard, under 8 Edw. VII., c. 51, for validation of By-law 184, (as amended by By-law 198) and the Debentures thereunder, ($12,900 for storm and sanitary sewers).

April 18. Application and material filed.

April 19. Application and material considered and approved.

April 19. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Clarke & Swabey, Solicitors for the Applicants, the Statutory Declarations of George Taylor, Mayor, and Percy Randolph Craven, Clerk, of the said Town, the certified copy of each of the said By-laws and the other material filed,

The Board orders that the said By-law No. 184, intituled "By-law No. 184. A By-law to provide for borrowing money by the issue of debentures secured by local special rates on the property fronting or abutting on Whitewood Avenue between the westerly limit of the Town and Sharpe Street, also on Armstrong

Street from Sharpe Street to a point 15 feet south of the northerly limit of lot 15 on the west side of Armstrong Street, and a point 15 feet south of the northerly limit of lot 11 on the east side of Armstrong Street for the construction of sewers on said portion of said Streets," as amended by By-law No. 198, intituled "By-law No. 198. A By-law to amend By-law No. 184 of the Town of New Liskeard," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that certificates be granted approving the said By-laws of the Municipal Corporation of the Town of New Liskeard, and declaring the same valid and binding, and that their validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-laws be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,

(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE No. 942.

Application by the Town of Prescott, under 4 Edw. VII., c. 22, sec. 11, for approval of Interest Increase By-law No. 639, to increase from 4 per cent. to 5 per cent. the rate of interest on Debentures issued under By-laws 623, 624, and 625, ($4,187.84 for local improvements).

April 18. Application and material filed.

April 19. Application and material considered and approved.

April 19. Order.

Upon the application of the above-named Corporation, and upon reading the Notice of Application filed by J. K. Dowsley, Esquire, K.C., Solicitor for the Applicant, the certified copy of each of the said By-laws numbered 623, 624, 625 and 639, the Affidavit of Frederick S. Evanson, Mayor, and Frederick Row, Treasurer, of the said Town, and the other material filed,

The Board orders that the said By-law No. 639 of the said Municipal Corporation of the Town of Prescott, intituled "By-law No. 639 of the Town of Prescott. A By-law to Amend By-laws Nos. 623, 624 and 625 respecting Local Improvement Debentures," be and the same is hereby approved under and in pursuance of Section 388b of "The Consolidated Municipal Act, 1903," (4 Edward VII., Chapter 22, Section 11 (Ontario)).

(Sgd.) JAMES LEITCH,

(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE No. 943.

Application by the Town of Prescott, under 4 Edw. VII., c. 22, sec. 11, for approval of Interest Increase By-law 640, (Increase from 4 per cent. to 5 per cent. on debentures issued under By-law 611, $17,000, for extending the sewer system).

April 18. Application and material filed.

April 19. Application and material considered and approved.

April 19. Order.

Upon the application of the above-named Corporation, and upon reading the Notice of Application filed by J. K. Dowsley, Esquire, K.C., Solicitor for the Applicant, the certified copy of each of the said By-laws numbered 611 and 640, the Affidavit of Frederick S. Evanson, Mayor, and Frederick Row, Treasurer, of the said Town, and the other material filed.

The Board orders that the said By-law No. 640 of the said Municipal Corporation of the Town of Prescott, intituled "By-law No. 640 of the Town of Prescott. A By-law to Amend By-law No. 611 respecting Sewer Debentures," be and the same is hereby approved under and in pursuance of Section 388b of "The Consolidated Municipal Act, 1903," (4 Edward VII., Chapter 22, Section 11 (Ontario)).

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE No. 944.

Application by the Town of Prescott, under 4 Edw. VII., c. 22, sec. 11, for approval of Interest Increase By-law 641, (4 per cent. to 5 per cent. on debentures issued under By-law 627, $5,000 to extend sewer system).

April 18. Application and material filed.

April 19. Application and material considered and approved.

April 19. Order.

Upon the application of the above-named Corporation, and upon reading the Notice of Application filed by J. K. Dowsley, Esquire, K.C., Solicitor for the Applicant, the certified copy of each of the said By-laws numbered 627 and 641, the Affidavit of Frederick S. Evanson, Mayor, and Frederick Row, Treasurer, of the said Town, and the other material filed,

The Board orders that the said By-law No. 641 of the said Municipal Corporation of the Town of Prescott, intituled "By-law No. 641 of the Town of Prescott. A By-law to Amend By-law No. 627 respecting Sewer Debentures," be and the same is hereby approved under and in pursuance of Section 388b of "The Consolidated Municipal Act, 1903," (4 Edward VII., Chapter 22, Section 11 (Ontario)).

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE No. 945.

Application by the Bell Telephone Company, under 10 Edw. VII., c. 84, sec. 10, for approval of agreement with the Kerr Line Telephone Association. (Not incorporated.)

April 19. Agreement filed and considered.

April 19. Letter to Parties that Board will not approve clause 10D of Agreement.

PROCEDURE FILE No. 946. (P.F.P. 76).

Application by Toronto & York Radial Railway (Metropolitan Division) under 6 Edw. VII, c. 30, sec. 59, ss. 8, for approval of Plan and Profile of proposed deviation northerly from C. P. R. Tracks.

April 19. Plan and Profile filed. Letter for Book of Reference.

April 28. Appointment for Hearing 11th May, 1911, 2.30 p.m., at Board's Chambers.

May 11. Hearing. Judgment reserved.

June 26. Judgment delivered, adjourning Hearing to Sept. 12th, at 2.30 p.m., at Board's Chambers, City Engineer to procure plan of double rail and ascertain if same can be rolled, and to file Plan and Estimates of proposed tunnel.

September 11. Hearing adjourned by arrangement with Counsel, to Thursday, 28th September, 1911, at 2.30 p.m., at Board's Chambers.

September 28. Hearing, 2.30-3.45 p.m.; further adjourned to 16th October, 2.30 p.m.

October 16. Hearing continued. Board appoints J. F. H. Wyse, Engineer, to inspect, prepare plans and estimates, and report on scheme for grade separation on deviation. The Board orders that Company be allowed to deviate, and that their Book of Reference be approved, and reserves further directions and costs pending Engineer's report and estimates.

October 25. Written Opinion handed out by Chairman of Board.

Opinion of the Board.

This is an Application to approve of the plan, profile and book of reference in connection with the Company's proposed deviation from Yonge Street to a private right of way, and in connection with the Company's new terminals on Birch Avenue.

The Company are compelled to leave Yonge Street and require land for their lines and new terminals, by reason of the Dominion Board of Railway Commissioners, having made an Order for the C. P. R. and C. N. R. to eliminate their level crossing at Yonge Street, where Toronto and York Radial Railway's tracks leave that street and run into their terminals. The Order of the Dominion Board makes it necessary for the C. P. R. and C. N. R. to construct a viaduct across Yonge Street, eight feet high, and build a subway six feet deep along Yonge Street so as to give a clearance of fourteen feet under their tracks across Yonge Street. The viaduct for the C. P. R. and C. N. R. will go through the Radial Company's terminals.

The Toronto and York Radial have purchased land upon which to erect new terminals on Birch Avenue, and out of about thirty parcels of land necessary for their right of way they have purchased or secured options on about fifteen.

The Applicants, the Toronto and York Radial Railway, plan, which they ask us to approve, shows level crossings over Farnham, Woodlawn, Walker and Wickson Avenues. The City and a large number of the residents in the neighborhood of these avenues make common cause in opposing the approval of the Company's plan showing level crossings over these streets. It was contended that the Company had no right to leave the present location of their railway on Yonge Street and to build and operate on a private right of way. The Board cannot subscribe to this doctrine. The Company have the right to leave Yonge Street and construct their railway on a private right of way, but that right cannot be exercised without the consent of the Board, and the Board may, upon such terms as seem just, order that the Company may make the deviation.

The City also say that it is not necessary for the Company to take their tracks from off Yonge Street, that they should join the City in double tracking as far as St. Clair Avenue, and that the Company and the City when the Civic Car lines

are built could both use the tracks. There are several difficult features in the way of this scheme upon which the Board require more information. In the first place, the gauge of the Toronto and York Radial is standard 4 ft. 8½ in., and the gauge of the Civic Car line is to be the same as the Toronto Railway Company, 4 ft. 10⅞ in. To accommodate the wheels of the trucks of both gauges, a special rail will have to be rolled. Two rails laid side by side cannot be laid close enough to catch the tread of the wheels of the wider trucks, and only close enough to leave room for the flange of the wheels. The City Engineer will require to procure a pattern of two rails in one and ascertain from some of the steel companies if such a rail can be rolled and its cost.

Again, after being over the ground with our Engineer, we cannot see how the Radial Railway's cars can get out of the subway and across the sidewalk on the south side of Yonge Street to the Company's terminals on Birch Avenue. The City will require to prepare and file a plan and profile with the Board showing that this can be done, and an estimate of the cost.

The Board were strongly urged to make it a term of their Order that the Company should tunnel from a low spot north of Mount Pleasant Cemetery and emerge on the level at Walker Avenue. From an examination of the locality it appears to the Board that the contour of the ground lends itself to this scheme, but a tunnel will cost a large amount of money. The City will require to file with the Board a plan and profile of the proposed tunnel, an estimate of the cost, and a statement of the amount which the City will contribute towards constructing the tunnel.

In order to give the City an opportunity of preparing the plans and profiles and making the estimates, and to procure the information herein mentioned for the Board, we adjourn this application until the twelfth day of September next, at 2.30 in the afternoon. We reserve costs and further direction.

Dated at Toronto this Twenty-sixth day of June, 1911.

(Signed) JAMES LEITCH,
Chairman.
(Signed) A. B. INGRAM,
Vice-Chairman.
(Signed) H. N. KITTSON,
Commissioner.

Opinion of the Board.

The Board at the Sitting held on the 16th inst., held that the Company had the right to deviate their line and to leave Yonge Street and get on their own right-of-way. The Chairman stated that later on he would write the reasons for the opinion of the Board. In addition to what has already been said and written in reference to this matter, the following reasons appear to the Board:

"The Company are authorized and empowered to extend, equip, maintain and operate their line of railway within the County of York to Lake Simcoe, or to any intermediate point between the present Northern terminus and Lake Simcoe, and to build branches from their said railway, and from any extension that may be constructed under the powers given under this Act to the Village of Markham, to the Town of Newmarket, and to the Village of Schomberg, and to equip, main-

train and operate such extension. The Company could also exercise all the powers, privileges, rights and authorities set forth in the Clauses of the Railway Act and the amendments thereto, incorporated with and made part of the Act to incorporate the Company, in any municipality where the line of the Company is constructed, or is by the Act authorized to be constructed. Provided always that any extension of the line of Railway on Yonge Street northerly from present terminus may be made with the consent of the Corporation of the County of York, and subject to any agreement that may be made between the Company and the municipality, and provided also that any extension hereby authorized other than the extension on Yonge Street, shall not be constructed upon or along any street or highway without the consent of the municipality having jurisdiction over such street or highway." (56 Vic. Cap. 94. Sect. 4, 5.)

This legislation had the effect of giving the Company the right to run from its then terminus in North Toronto, which is the same as its present terminus, either on a highway or on a private right of way. It also gave the Company the right of expropriation. The only limitations placed upon the rights of the Company are when they run along highways. The clauses of the Railway Act mentioned in Section 5 include the rights of expropriation, etc. Besides all this, Clauses 1 and 6 of the Company's Private Act of 1911 (1 Geo. V., Cap. 134), provides that "The Company may, subject to the provisions of an Act respecting certain municipal by-laws and agreements, passed in the ninth year of His late Majesty's reign, Chapter 75, survey, lay out, construct, complete, equip and maintain railways, extensions and branches between such points as the Toronto and York Radial Railway Company, the Toronto and Scarboro Electric Railway, Light and Power Company, Limited, The Toronto and Mimico Electric Railway and Light Company, Limited, and the Metropolitan Railway Company, are now empowered to lay out, construct, maintain and operate railways, extensions and branches either upon such highways as may be agreed upon between the different municipalities having respective control thereof, and the Company, or upon private right of way, or upon both such highways and such private right of way, and may survey, lay out and construct, complete, equip and maintain extensions from a point upon the Toronto and Scarboro division to the Village of Markham, in the County of York, and upon the Metropolitan division from the Village of Sutton to the Village of Pefferlaw, in the County of York. Nothing in this section contained shall extend the rights of the Company under any existing agreement with any municipality, so as to empower the Company to lay double tracks upon any highway where such right does not now expressly exist by such agreement or otherwise."

Section 6: "Provided that the Ontario Railway Act, 1906, except where inconsistent with the provisions of the Act passed in the 61st year of the reign of Her late Majesty Queen Victoria, Chapter 66; the 6th year of His late Majesty's reign, Chapter 124, and this Act shall apply to the said Company, and to the railways constructed or operated by it, and the provisions of the Ontario Railway Act of 1906, except where inconsistent with the provisions of this Act, shall apply to the said extensions hereby authorized."

Section 55 of the Railway Act gives the Company the right to make changes in the location of its line. It provides as follows: "A Company which desires at any time to change the location of its line of railway, in any particular part, for the purpose of lessening a curve, reducing a gradient, or otherwise benefitting such line of railway, or for any other purpose of public advantage, may, with the leave of the Board, make such change; and all the clauses of this Act shall refer as fully to the part of any such line of railway, so at any time changed or pur-

posed to be changed, as to the original line; but no railway company shall have any right to extend its line of railway beyond the termini mentioned in the special Act."

Section 199 of the Ontario Railway Act of 1906 provides that "The Company may at any point or points where its railway may run along the highway, deviate from such highway to the right of way owned by the Company, provided that no obstruction of such highway shall be made by such deviation, but if the rails on such deviation do not rise above or sink below the surface of the road more than one inch, they shall not be deemed an obstruction; provided that the rights of this Section conferred shall not be exercised by the Company without the consent of the Board, and the Board may upon such terms as seem just, upon application to the Company, order that the said Company may make such deviation."

By reason of the above-mentioned legislation, the Board came to the conclusion that the Company had the right to deviate from the highway to their own right-of-way, but when it became necessary to cross the public highway, the Board were of the opinion that it should be on terms to cross such streets either by tunnel or by viaduct, or by both, if at all possible, and if within the financial ability of the Company.

Dated this 25th day of October, 1911.

(Sgd.) JAMES LEITCH,
Chairman.

PROCEDURE FILE 947.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Snake River Telephone Association (not incorporated).

April 20. Agreement filed and considered.

April 20. Letter to parties that Board will not approve of Clause 8A of the Agreement.

PROCEDURE FILE 948.

Application by the Town of Cobalt, under 8 Edw. VII., c. 51, for validation of By-law 143, as confirmed by 1 Geo. V., c. 87 (Ont.), ($50,000 for waterworks and sewerage system).

April 20. Application and copy of above cap. 87 filed.

April 20. Application considered and approved.

April 21. Order.

Upon the Application of the said Corporation, and upon reading the Notice of Application filed by W. J. Clark, Esquire, Agent for George Ross, Esquire, Solicitor for the Applicant, and an Act to confirm By-law No. 143 of the Town of Cobalt, being Chapter 87 of the Statutes of the Province of Ontario, passed in the first year of the reign of His Majesty King George V.

The Board orders that the said By-law No. 143 of the said Corporation, intituled "By-law Number 143. Being a By-law to authorize the issue of debentures of the Town of Cobalt to the amount of fifty thousand dollars for the purpose of completing the construction of a system of waterworks and sewerage for the Town of Cobalt," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Cobalt, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) James Leitch,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

Procedure File 949. (P.F.P. 77.)

Application by the Toronto Suburban Railway Company, for approval of Plan of Siding on Dundas Street, near the intersection of St. John's Road therewith.

April 22. Plan filed.

April 22. Appointment for Hearing, May 4th, 11.30 a.m., at Board's Chambers.

May 4. Hearing adjourned to May 9th, 1911, at 2.30 p.m., pending service of notice on City and production of City Engineer's approval.

May 9. Hearing pursuant to adjournment. Order to go on agreement between Engineers for Company and City as to location of the switch.

Procedure File 950.

Application by the Town of Kenora, under 6 Edw. VII., c. 34, sec. 21 (Proviso), for approval of Waterworks Extension By-law 482 ($5,000).

April 25. Application and material filed.

April 26. Application and material considered and approved.

April 26. Order.

Upon the Application of the above-named Corporation, and upon reading the Notice of Application filed by Messrs. Clarke & Swabey, Solicitors for the Applicant, the statutory declarations of Donald H. Currie, Mayor, Ole Scholin, Superintendent of Waterworks, and Michael McCulloch, Clerk and Treasurer, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 482 of the Municipal Corporation of the Town of Kenora, intituled "By-law No. 482. A By-law to provide for the issue of debentures of the Town of Kenora to the amount of fifteen thousand dollars, and to raise the sum required, thereby, for the purpose of extending and improving the system of waterworks," be and the same is hereby approved.

(Sgd.) James Leitch,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

Procedure File 951.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of agreement with the Consolidated Telephone Company, Limited.

April 27. Agreement filed.

April 27. Agreement considered. Letter to each party that Board cannot approve Clause 29, and requiring explanation of Clauses 31 and 32 of the Agreement.

PROCEDURE FILE 952.

Application by the Town of Rainy River, under 8 Edw. VII., c. 51, for validation of By-law 92, and the Debentures thereunder ($11,000.00 for Trunk sewers).

April 28. Application and material filed, considered and approved. Order.

Upon the Application of the said Corporation, and upon reading the Statutory Declarations of James Herbert Wilson, Clerk, and Walter Otho Chapman, Mayor, of the said Town, the certified copy of the said By-law and the other material filed.

The Board orders that the said By-law Number 92 intituled, "By-law No. 92. A By-law to authorize the issue of debentures of the Municipality of the Town of Rainy River for the purpose of constructing a trunk sewer, sewage disposal plant and outlet thereto within the said Municipality," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Rainy River, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 953.

Application by the Town of Rainy River, under 8 Edw. VII., c. 51, for validation of By-law 106 and the Debentures thereunder ($1,200 for fire appliances).

April 28. Application and material filed, considered and approved. Order.

Upon the Application of the said Corporation, and upon reading the Statutory Declarations of James Herbert Wilson, Clerk, and Walter Otho Chapman, Mayor, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law Number 106, intituled "By-law No. 106. By-law to contract a debt of twelve hundred dollars by the issue of debentures, termed Fire Protection Debentures, for the purpose of purchasing fire hose and appliances for the Town of Rainy River," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Rainy River, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 954.

Application by the Town of Rainy River, under 8 Edw. VII., c. 51, for validation of By-law No. 107, and the debentures thereunder ($4,000 to complete Town Hall).

April 28. Application and material filed, considered and approved. Order

Upon the Application of the said Corporation, and upon reading the Statutory Declarations of James Herbert Wilson, Clerk, and Walter Otho Chapman, Mayor, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law Number 107, intituled "By-law No. 107. A by-law to complete the Town Hall and to provide for the raising of $4,000.00 by way of debentures necessary therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Rainy River, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 955.

Between:

The Hamilton, Grimsby and Beamsville Railway Co.
Applicant,

—and—

The Township of Saltfleet,
Respondent.

(Re Stops).

April 29. Application filed.

June 7. Appointment for hearing at Court House, Hamilton, 16th inst., 11 a.m.

June 16. Hearing and view by Board.

July 10 Order.

Upon the Application of the said Company, in the presence of the Applicants and Respondents, upon consideration of the evidence adduced, and upon hearing Counsel for both parties, and after viewing the Company's Line and the location of the matters in question herein, and it having been agreed between the parties that the points mentioned in the annexed By-law shall be the regular stopping places of the said Company within the limits of the said Township of Saltfleet,

The Board orders that the Resolution, or By-law, of the said Company, passed at a meeting of its Board of Directors, held July 4th, 1911, a certified copy of which Resolution is hereto annexed, be and the same is hereby approved, and that the points mentioned in said Resolution shall be regular stopping places on the line of the said Company within the limits of the said Township of Saltfleet.

And the Board makes no Order as to costs, except that the said Company shall pay the sum of $20.00 for Law Stamps on this Order.

(Signed) A. B. Ingram,
Vice-Chairman of the Ontario Railway and Municipal Board.

(Seal.)

The Hamilton, Grimsby and Beamsvile Electric Railway Company.

Resolved,—That the resolution of the Board of Directors of the Hamilton, Grimsby and Beamsville Electric Railway Company, referring to stopping places, passed on May 10th, 1911, be and is hereby amended to read as follows: "On such day and date as the Manager of the Company may direct, the following points and no others shall be, and are hereby, adopted as regular stopping places:

1. Terminal Station, Hamilton,
3. Ferguson Avenue,
5. Wellington Street,
7. Emerald Street,
9. Wentworth Street,
11. Fairleigh Avenue,
13. Sherman Ave. and Main St.,
15. Blake Street,
17. St. Peter's Home,
19. Prospect Street,
21. Trolley St. and Maple Ave.
23. T. H. and B. Spur,
25. Brick Yards,
27. Reservoir,
29. About 1600 ft. E. of Reservoir,
31. Bartonville,
33. Condy's Lane,
35. Bartonville Switch,
37. Nugent's,
39. Red Hill,
41. Pottruff's,
43. About 1,300 ft. E. of Pottruff's.
45. Nash's,
47. About 1,350 ft. E. of Nash's,
49. Webster's Side Road,
51. Battle field,
53. About 1,450 ft. E. of Webster's Sd. Rd.
55. Stoney Creek,
57. Stoney Creek Switch.
59. Nash's Lane,
61. Grey's Side Road,
63. About 1,450 ft. E. of Grey's Sd. Rd.
65. Green's Side Road,
67. About 2,200 ft. E. of Green's S. Rd.
69. Millen's Side Road,
71. About 1,450 ft. E. of Millen's S. Rd.
73. Fruitland,
75. Fruitland Post Office,
77. W. Orr's,
79. Fruitland Church,
81. About 1,000 ft. E. of Fruitland Church,
83. Jones' Side Road,
85. About 1,600 ft. E. of Jones' Sd. Rd.,
87. Glover's Side Road,
89. E. D. Smith's,
91. J. W. Smith's,
93. McNeiley's Side Road,
95. T. H. P. Carpenter's,
97. H. H. Carpenter's,
99. Lewis' Side Road,
101. About 1,400 ft. E. of Lewis' S. Rd.,
103. Winona,
105. About 1,400 ft. E. of Winona,
107. Fifty Crossing,
109. Chambers',
111. Fifty Church,
113. Town Line,
115. Kelson Avenue,
117. Cline's,
119. Oaks' Side Road,
121. Pattison's Switch,
123. Hunter's Side Road,
125. About 1,300 ft. E. of Hunters' S. Rd.,
127. Makepeace Side Road,
129. About 900 ft. E. of Makepeace S. Rd.,

131. Woolverton Mountain Road,
133. About 1,200 ft. E. of Woolverton M. Rd.,
135. About 1,200 ft. E. of above,
137. Schwab's Curve,
139. Walker's Curve,
141. Gower's Lane,
143. Murray Street,
145. Paton Street,
147. Near Village Inn,
149. Grimsby (Oak Street),
151. Grimsby Town Limits,
153. About 1,320 ft. E. of Town Limits,
155. Nelles' Side Road,
157. About 1,320 ft. E. of Nelles' S. Rd.,
159. Book's Side Road,
161. About 1,350 ft. E. of Book's S. Rd.,
163. Grimsby Beach Road,
165. Grimsby Beach,
167. About 1,350 ft. E. of Grimsby Beach Rd.,
169. Frost's,
171. Town Line,
173. Tallman's,
175. Tallman's Challet,
177. Thirty Challet,
179. Zimmerman's Road,
181. About 1,400 ft. W. of Bell's S. Rd.,
183. Bell's Side Road,
185. Prudhome Hill,
187. Beamsville Station,
189. Ontario Street,
191. Fairbrother's,
193. Gibson's.

I hereby certify that the foregoing is a true and correct copy of a resolution passed at meeting of the Board of Directors of the Hamilton, Grimsby and Beamsville Electric Railway Company held July 4th, 1911.

GEO. W. FEARMAN,
Secretary.

PROCEDURE FILE 956.

Application by the Hamilton, Grimsby and Beamsville Electric Railway Company, for approval of Plan of New (in lieu of old) Switch into Wagstaff's Jam Factory.

May 6. Application and blue print filed.
May 30. Amended letter filed giving terms of consent of City of Hamilton.
June 1. Order issued.

The Ontario Railway and Municipal Board.

Upon the Application of the said Company, and upon consideration of the Plan and Profile filed therewith, and upon reading the consent signed by F. R. Waddell, Esquire, Solicitor for the Municipal Corporation of the City of Hamilton, dated May 29th, 1911,

The Board orders that the Plan and Profile of the Hamilton, Grimsby and Beamsville Electric Railway Company's proposed new Switch (in lieu of the old Switch to be discontinued) into Wagstaff's Jam Factory, in the City of Hamilton, be and the same are hereby approved, subject to the following terms and provisions, viz.:

1. The old switch to be removed and that portion of Trolley Street from which switch removed shall be restored to the satisfaction of the City Engineer.

2. The construction and maintenance of the new switch on Trolley Street to be to the satisfaction of the City Engineer.

3. Should Trolley Street be hereafter macadamized or paved the Company to macadamize or pave the space between the rails and four feet outside the rails.

4. Should the Board at any time order protection, such protection to be furnished without cost to the City.

5. The Company to release the City Corporation from all expense owing to the construction, operation and maintenance of the said switch, both as regards present as well as future works of the Corporation.

6. The provisions contained in By-law No. 687 of the Council of the said City respecting the Company, where applicable, to apply to switch.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 957.

Re Agreements between Provincial Local Telephone Systems and the Bell Telephone Company.

May 8. Board promulgates its Ruling to the effect that it will not approve of Agreements between the Bell Telephone System and Local Systems preventing local systems from transmitting messages over the Bell System, from any other local system with which it connects, or may hereafter connect, or of any agreement which will prevent or restrict connection, intercommunication, etc., between local systems.

Ruling of the Board.

The Board decides not to approve of any contract between any local telephone company and the Bell Telephone Company which will prevent a local telephone company from taking or transmitting messages from any other local telephone company with which it now connects or with which it may in future connect.

The Board will not approve of any agreement which will have the effect of preventing or restricting connection, intercommunication, joint operation, reciprocal use or transmission of business between telephone companies under its jurisdiction.

Toronto, May 5th, 1911.

(Signed) JAMES LEITCH,
Chairman.
(Signed) A. B. INGRAM,
Vice-Chairman.
(Signed) H. N. KITTSON,
Commissioner.

The above is a copy of the Ruling of the Board which the Board has directed to be sent to each local municipal telephone company under its jurisdiction.

I have the honour to be,

Your obedient servant,

(Signed) H. C. SMALL,
Secretary.

Toronto, May 8th, 1911.

PROCEDURE FILE 958.

Application by the City of London, under 6 Edw. VII., c. 34, sec. 21, for approval of Waterworks Extension By-law ($57,000).

May 11. Application and material filed.

PROCEDURE FILE 959.

Application by the City of London, under 6 Edw. VII., c. 34, sec. 21, for approval of Electric Light and Power Extension By-law ($90,000).

May 11. Application and material filed.

PROCEDURE FILE 960.

Application by the Township of O'Connor, under 8 Edw. VII, c. 51, for validation of By-law No. 50, and debentures ($500.00 for schoolhouse).

May 11. Application and material filed. Letter with material for correction.

June 1. Corrected material filed.

Order.

Upon the application of the said Corporation, and upon reading the Notice of application filed by Christopher J. Evans, Clerk of the said Township, the Affidavit of the said Clerk, the copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 50, intituled "Municipality of O'Connor. By-law No. 50. The Corporation of the Municipality of O'Connor By-law to provide for the issue of debentures for the sum of Five Hundred Dollars ($500.00) for the erection of a schoolhouse in School Section No. 3 in this Township," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908." that a certificate be granted approving the said By-law of the Municipal Corporation of the Township of O'Connor, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Seal.)

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 961.

Application by the Norfolk County Telephone Company, Ltd., under 10 Edw. VII, c. 84, sec. 10, for approval of agreement with the Canadian Machine Telephone Company, Ltd.

May 12. Copy of Agreement filed.

June 6. Order.

PROCEDURE FILE 962.

Application by the Town of Pembroke, under 8 Edw. VII, c. 51, for validation of By-law 522 and the debentures thereunder. ($65,000 for waterworks improvements).

May 13. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of application filed by W. H. Williams, Esquire, Solicitor for the Applicant, the affidavits of William L. Hunter, Mayor, and Alfred J. Fortier, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed.

The Board orders that the said By-law No. 522, intituled "By-law No. 522. A By-law to raise by way of Loan the sum Sixty-five Thousand Dollars for the purposes hereinafter mentioned," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Pembroke, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 963.

Application by the Bell Telephone Company, under 10 Edw. VII., c. 84, for approval of Agreement with the Town of Strathroy.

May 15. Agreement filed.

May 26. Agreement considered and approved. Order.

PROCEDURE FILE 964. (P.F.P. 78).

Application by the Mount McKay and Kakabeka Falls Railway Company, for approval of Plan, Profile and Book of Reference of its Slate River Line.

May 15. Plan, Profile and Book of Reference filed, considered and referred to Board's Engineer.

May 17. Board's Engineer's Report approving same received. Plans approved and certified.

May 16, 1911.

The Chairman of the Ontario Railway and Municipal Board, Toronto.

Sir,—I have examined the plans of the branch line of the Mount McKay and Kakabeka Falls Railway to Slate River, handed to me by your Board, and find the figures and data given thereon to be correct.

The scales shown on these plans are those required by the Act, and I return them to your Board for approval.

The approval of the above plans will of course not cover the bridge over the Kaministiqua River which I understand you have not yet received.

Yours truly,
(Signed) H. W. Middlemist.

Procedure File 965. (P.F.P. 81).

The Consolidated Telephone Company, Limited,

vs.

The Bolton Telephone Company, Limited.

(For connection, etc.).

May 15. Application filed.

May 26. Agreement between parties filed—letter as to same.

June 12. Map (sketch) shewing lines. filed. (P.F.P. 81).

Appointment for hearing 20th inst., 3 p.m., at Board's chambers.

June 20. Hearing. Judgment reserved pending report by Board's expert, F. Dagger.

June 27. Board's expert reports settled effected and memorandum of agreement signed and files same.

Order.

The Ontario Railway and Municipal Board.

This application having come before the Board for hearing on the 20th instant in the presence of both parties, and upon hearing what was alleged by those present on behalf of the Applicant and Respondent, and the Board having reserved judgment pending a report by its expert, Francis Dagger, Esquire, who was appointed and directed by the Board to visit the location in question and to report to the Board, and the said Francis Dagger having reported that a settlement has been arranged between the Applicant and the Respondent, and that a memorandum of Agreement incorporating the same has been signed by both parties, duplicate original of which memorandum is hereto annexed,

The Board orders that the memorandum of agreement, dated the Twenty-fourth day of June, 1911, made between the said Applicant, of the First Part, and the said Respondent, of the Second Part, be and the same is hereby approved.

And the Board makes no order as to costs, except that the Applicant and Respondent shall each pay $5.00 for Law Stamps (being $10.00 in all) on this order.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

Memorandum of agreement dated this 24th day of June, 1911.

BETWEEN:

THE CONSOLIDATED TELEPHONE COMPANY, LIMITED, of Caledon, in the Province of Ontario,

Party of the First Part,

—and—

THE BOLTON TELEPHONE COMPANY, LIMITED, of Bolton, in the Province of Ontario,

Party of the Second Part.

Whereas the parties of the first and second parts are desirous of interchanging connections between the subscribers to their respective telephone systems, it is hereby agreed and understood between the aforesaid parties, as follows:

1. Each party shall provide the necessary trunk circuits from its exchange in Caledon and Bolton respectively to the Village of Caledon East where the said circuits shall be connected together and form a continuous trunk line between Caledon and Bolton.

2. Each party shall maintain its portion of the trunk line in good working order.

3. A free interchange of service shall exist between those subscribers to the systems of both parties whose premises are situated within an area bounded on the North and South by lots 20 and 30 inclusive in Albion and lots 3 and 13 in Caledon inclusive and on the East and West by the west half of the fourth concession in Albion and the east half of the sixth concession in Caledon inclusive.

4. Subject to the provisions of Clause 3 hereof, all subscribers to the systems of both parties whose premises are situated in the Townships of Albion, Chinguacousy, Caledon, and Mono, and the Village of Bolton shall pay a toll charge of five cents per conversation of three minutes duration for all conversations passing over the lines of either party, and originating and terminating within the aforesaid area.

5. A toll charge, per conversation of three minutes duration, of ten cents shall be paid by all subscribers whose premises are situated outside of the Townships of Albion, Chinguacousy, Caledon, and Mono and the Village of Bolton for all conversations passing over the lines of either party and originating and terminating on the systems of both parties.

6. The charge per conversation of three minutes duration to non-subscribers between all points on the systems of both parties shall be the established charge provided for subscribers in this agreement plus ten cents.

7. Each party shall keep a correct record of all calls originating upon its system, and shall collect all charges due from subscribers and non-subscribers for conversations originating upon its system, and each party shall on or before the fifth day of each month remit to the other party a sum equal to fifty per cent. of the total amount due for all conversations originating upon its system and terminating upon the system of the other party during the preceding month.

8. Where a special charge is made for night or messenger service each party shall collect such charges in respect of conversations originating upon its system and shall remit to the other party such portion of the said special charges as shall be due on account of such night or messenger service.

9. The necessary connections provided under this agreement shall be completed within one month from the date hereof.

10. This agreement is subject to the approval of the Ontario Railway and Municipal Board and shall be for a term of three years from the date hereof and thereafter until cancelled by three months' notice in writing from either party.

Signed on behalf of the Consolidated Telephone Co., Ltd.

(Signed) ALEX McELWAIN, *President.*
(Signed) E. E. WILSON, *Secretary-Treasurer.*
(Signed) J. W. BURT, *Vice-President.*

Witness, (Signed) F. Dagger.

Signed on behalf of the Bolton Telephone Co., Ltd.

(Signed) ROBERT SMITH, *Secretary-Treasurer.*
(Signed) T. W. LEAVENS, *Director.*
(Signed) W. A. CALDWELL, *Manager.*

Witness, (Signed) F. Dagger.

PROCEDURE FILE 966.

Application by the Town of Cochrane, under 8 Edw. VII. c. 51, for validation of By-law No. 28, and the debentures thereunder ($50,000 to construct waterworks and sewers).

May 16. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of application filed by Messrs. Clarke and Swabey, Solicitors for the applicant, the Statutory Declarations of Thomas Joseph McManus, Mayor, and Sidney Lee Bradley, Clerk, of the said Town, the verified copy of the said By-law and the other material filed.

The Board orders that the said By-law No. 28, intituled "By-law No. 28. Being a By-law to provide for raising the sum of fifty thousand dollars, by way of loan, upon security of debentures of the Town of Cochrane, in the District of Nipissing, and for expending the said moneys in constructing sewers and waterworks in the said Town," be, and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of

the Municipal Corporation of the town of Cochrane, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 967. (P.F.P. 79).

Application by the City of Toronto, under 6 Edw. VII., c. 30, sec. 56, for approval of Plans, etc., of Toronto Hydro-Electric System, 2,200 Volt head on Kingston Road from Queen Street to Kenilworth Ave., and from Kenilworth Ave. to Lawlor Ave.

May 16. Application and Plans filed.

Board appoints 26th inst., at 2.30 p.m., at its Chambers, for Hearing.

May 26. Hearing—Approval of Plans postponed pending agreement by Engineers (Board's, City's and Railway Company's) as to location of Line and Poles, when Plans shewing new location are to be filed for approval.

PROCEDURE FILE 968.

Application by the Erie Telephone Company, Ltd., under 10 Edw. VII., c. 84, for approval of Agreement with the Dunnville Consolidated Telephone Company, Ltd.

May 17. Agreement filed.

May 29. Hearing pursuant to appointment and adjournment.

Approval of agreement postponed pending filing of Revised Tariff of Tolls and charges.

June 17. Revised Tariff and amendments to agreement filed for approval.

Sept. 11. Executed agreement having been filed, considered and approved,—order.

This Application having come before the Board for hearing on the 29th day of May, 1911, at 2.30 p.m., in the presence of both parties and upon hearing what was alleged by those present on behalf of the Applicant and Respondent, and the Board having reserved judgment pending a report by its Expert, Francis Dagger, Esquire, who was appointed and directed by the Board to report on the Agreement and to make such suggestions as to amendments, as in his judgment are necessary, and the said Francis Dagger having reported certain omissions and amendments, all of which have been incorporated in the memorandum of Agreement and the same has been signed by both parties, duplicate original of which Memorandum is hereto annexed.

The Board orders that the Memorandum of Agreement, dated the 1st day of July, 1911, made between the said Applicant, of the First Part and the said Respondent of the Second Part, be and the same is hereby approved.

And the Board makes no Order as to costs except that the Applicant and Respondent shall each pay $5.00 for law stamps (being $10.00 in all) on this Order.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 969.

BETWEEN:

The Ottawa Valley Rural Telephone Company, of Kars.

vs.

The Metcalfe Rural Telephone Company, of Metcalfe and the Township of Osgoode.

For Intercommunication, under 10 Edw. VII., c. 84, sec. 8 and 9, and the right to erect pole lines, 11 Edw. VII., c. 55, sec. 4 f.

May 19. Application filed. Letter for Sketch, etc., etc.

May 26. Sketch filed.

June 13. Settlement arranged and agreement considered and approved. Order issued.

Oct. 18. Complaint filed by Applicants that Respondents had cut connection, etc.

Nov. 3. Appointment for hearing issued for Dec. 5th, at 11 a.m. at Board's Chambers.

Dec. 5. Letters from both parties that Settlement effected.

Upon the application of the above named Applicants, upon reading the Agreement between the Applicants and the Respondents bearing date the Ninth day of June, A.D. 1911, and the maps and other material filed,

The Board orders that the said Agreement, made between the Applicants and the Respondents bearing date the Ninth day of June, A.D. 1911, be and the same is hereby approved.

And the Board further orders and directs that the territory specified in Clause 1 of the said Agreement shall be thoroughly canvassed by the Respondents for subscribers within two months from the date hereof, and all contracts for service secured within such period shall be completed by the Fifteenth day of November, A.D. 1911.

The Board further orders and directs that all work provided for in Clause 2 of the said Agreement, including the erection by the Respondents of the necessary poles in the Township of Osgoode, to carry the Applicant's trunk circuit, shall be completed, and an interchange of service established between the telephone systems of the Applicants and the Respondents within sixty days from the date hereof.

The Board makes no Order for costs except that the Applicants and Respondents shall pay $5.00 for the stamp required for this Order.

JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 970.

Application by the Town of North Bay, under 8 Edw. VII., c. 51, for validation of By-law 306, and Debentures. ($8,000 for storm sewers).

May 22. Application and material filed, considered and approved. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by J. M. McNamara, Esquire, Solicitor for the Applicant, the Affidavits of George Alexander McGaughey, Mayor, and Maurice Wells Flannery, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 306, intituled "By-law No. 306 of the Town of North Bay. By-law to authorize the construction of Storm Sewers and to provide for the issue of debentures of the said Town to the amount of $18,000.00 to raise the sum required in payment therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of North Bay, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal)

PROCEDURE FILE 971.

Application by the Town of Haileybury, under 8 Edw. VII., c. 51, for validation of By-law No. 267, and the Debentures thereunder ($3.500 to erect market).

May 23. Application and material filed. Letter for further proof.

May 30. Further material filed as requested.

June 1. Further material considered and approved. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Affidavits of Nelson R. Green, Mayor, and Theodore Henry Connor, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 267, intituled "Municipal Corporation of the Town of Haileybury. "By-law No. 267. A By-law to provide for the erection of a Public Market Building and to authorize the issue of debentures of the said Corporation to the amount of Thirty-Five Hundred (3,500) dollars for the purpose of raising the sum required therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Haileybury, and declaring the same valid

and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) Jas Leitch,
Chairman of The Ontario Railway and Municipal Board.

(Seal)

Procedure File 972.

Application by the Town of Preston, under 8 Edw. VII., c. 51, for validation of By-law No. 492, and debentures. ($21,400.00 for the construction of Sewers).

May 29. Application and material filed, considered and approved. Order.

Upon the applicatiton of the said Corporation, and upon reading the Notice of Application filed by C. R. Hanning, Esquire, Solicitor for the Applicant, the Affidavit of M. H. Mullin, Mayor, and Harry C. Edgar, Clerk, of the said Town, the certified copy of the said By-law and the other material filed.

The Board orders that the said By-law No. 492, intituled "Corporation of the Town of Preston By-law No. 492. A By-law for borrowing money by the issue of debentures secured by local special rates for the Construction of Sewers as within set forth," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Preston, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Signed) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

Procedure File 973.

Application by the Bell Telephone Company of Canada, Limited, under 10 Edw. VII., c. 84, for approval of agreement with the Town of Barrie.

June 1st, Agreement filed.

June 10. Order.

Procedure File 974.

Application by the Municipal Corporation of the Village of Blyth, under 10 Edw. VII., c. 84, for approval of Agreement with the Municipal Corporation of the Township of McKillop, of which execution was refused by the Township.

(Blyth vs. McKillop).

June 6. Application and material filed.

June 20. Hearing pursuant to appointment. Judgment for applicants (See Stenographer's notes).

June 26. Formal Order settled and issued.

July 18. Notice of Application for leave to Appeal received.

Oct. 13. Notice of Appeal and Order allowing Appeal filed.

Upon the application of the Applicants, and upon hearing what was alleged by Counsel for the Applicants, no one appearing for the Respondents although duly notified in that behalf:—

The Ontario Railway and Municipal Board, under and in pursuance of Section 9 of "The Ontario Telephone Act, 1910," hereby orders and directs connection, intercommunication, joint operation, reciprocal use and transmission of business between the Telephone Systems of the Applicants and the Respondents upon the following terms and conditions, that is to say:—

(1) The Applicants shall build and maintain a Trunk line from their Switch-board in their Central Office in the village of Blyth, in the county of Huron, to a point in or adjacent to the Town of Clinton, in the county of Huron.

(2) The Applicants shall bear the whole cost of building, constructing and maintaining the said Trunk line, and of equipping and operating the existing Switch-board in the Central Office of the Applicants, in the said village of Blyth, and shall allow the use of the same and of all their lines, to the Respondents or any of their subscribers whose lines terminate in or adjacent to the Town of Clinton, on payment of a charge of Five cents for each call or connection.

(3) The Respondents shall connect the trunk line of the Applicants with their telephone system at a point within or adjacent to the Town of Clinton in the County of Huron, and the Respondents shall at their expense provide and maintain such switching facilities as may be necessary to enable the subscribers to the Applicants' system to have connection with those subscribers to the Respondents' system whose lines terminate in or adjacent to the Town of Clinton.

(4) The Respondents shall allow the use of all their subscribers lines which terminate in or adjacent to the Town of Clinton, to the Applicants or any of their subscribers on payment of a charge of Five cents for each call or connection.

(5) Should any person who is not a subscriber to either of the Telephone Systems of the Applicants or the Respondents, desire to avail themselves of the use of the connection between the said systems ordered herein, a charge of Twenty cents shall be levied and collected therefor, together with messenger service, if any, which said sum or sums shall be paid into the office from which the call originated, and that the said charge of Twenty cents, exclusive of messenger service, shall form a common fund and shall be divided monthly between the Applicants and the Respondents, share and share alike.

(6) That the connection between the Telephone Systems and lines of the Applicants and the Respondents shall be made and completed within the space of Two months from the date of this Order.

(7) That the terms of this order for connection, intercommunication, joint operation, reciprocal use and transmission of business, between the Telephone Systems of the Applicants and Respondents may be superseded with the approval and consent of The Ontario Railway and Municipal Board, by a mutual agreement in writing, made between the Applicants and the Respondents.

The Board makes no order as to costs, excepting that the Applicants and Respondents shall pay the sum of Ten Dollars, being Five Dollars each, for the necessary stamps to be affixed to this Order.

(Signed) A. B. Ingram,
Vice-Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 975.

Application by the Town of Thessalon, under 8 Edw. VII, c. 51, sec. 3, for validation of its By-law No. 6, 1911, and agreement referred to therein as "Schedule A" "with the Canadian Pacific Railway Company ($3,000 for the extension of water mains).

June 5. Application and material filed, considered and approved. Order to be issued 12th inst.

June 12. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the affidavits of Daniel J. Sandie, Mayor, and Charles Arthur Batson, Clerk and Solicitor, of the said Town, the verified copy of the said By-law and the other material filed.

The Board orders that the said By-law No. 6, intituled "By-law No. 6, Year 1911, of the Town of Thessalon. Being a By-law to provide for the borrowing of three thousand dollars for the extension of the water-mains to the proposed new C. P. R. station in the Township of Thessalon, and for the supplying of water to the Canadian Pacific Railway Company, at the rates, and subject to the terms and conditions contained in the agreement referred to as "Schedule A," to this By-law, and to authorize the Mayor and Council to enter into the said agreement with the Canadian Pacific Railway Company," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Thessalon, and declaring the same valid and binding and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 976.

Application by the Wroxeter Rural Telephone Company, Limited, under 10 Edw. VII., c. 84, sec. 10, for approval of an Agreement with the Molesworth Independent Telephone Company, Limited.

June 12. Agreement filed.

June 24. Order.

PROCEDURE FILE 977.

Between:

The City of Toronto,

Applicant,

—and—

The Toronto Railway Company,

Respondent.

(Re Interchange of Traffic.)

June 13. Application filed.

Appointment for Hearing at Board's Chambers, Wednesday, 21st inst., 2,30 p.m.

June 21. Hearing. Judgment reserved.

June 24. Judgment delivered declaring that proposed civic car lines and Toronto Street Railway Company shall be subject to the provisions of Sec. 57 of the Ontario Railway Act, 1906.

July 7. Notice of application for leave to appeal filed by Respondents.

Nov. 29. Notice of setting down appointment for Sittings commencing January 16th, 1912, filed by Solicitors for Toronto Railway Company.

Upon the application of the above-named Applicants, in the presence of the Applicants and Respondents, upon hearing the evidence adduced on behalf of the Applicants and Respondents, and upon hearing Counsel for the Applicants and Respondents,

1. This Board determines, orders and declares that Section 57 of "The Ontario Railway Act, 1906," shall apply to the Toronto Railway Company and the street railways owned and operated by the said Company.

2. This Board further determines, orders and declares that Section 57 of "The Ontario Railway Act, 1906," shall apply to the Corporation of the City of Toronto, and the street railways to be constructed by it.

3. And the Board orders that the Applicants shall pay the sum of Twenty dollars for stamps required for this Order, and makes no other order as to costs.

(Sgd.) A. B. Ingram,
Vice-Chairman of The Ontario Railway & Municipal Board.

(Seal.)

The Ontario Railway and Municipal Board.

Between:—

The Corporation of the City of Toronto,

Applicant.

—and—

The Toronto Railway Company,

Respondent.

In the Matter of the Interchange of Traffic.

Judgment.

This application is made by the City against the Toronto Railway Company to the Board for the purpose of securing an interchange of traffic between the civic car lines and the Company's street railway system, and with that in view to have it determined that Section 57 of the Ontario Railway Act of 1906 applies to the Company and the City Street Railways.

Mr. Osler objects to the order being made by the Board on the ground that the City has at present no railway and no traffic, and that the right to operate civic car lines exists only on paper. It is true that the City has not yet constructed their street railway nor opened it for the carriage of passengers. That the proposed civic lines will be built is as certain as taxes. The City submitted a

by-law to the ratepayers to authorize the issue of debentures to the amount of $1,157,293 to pay for the construction and equipment of street railways upon certain streets to be selected by the Council with the approval of this Board. The by-law was carried by an overwhelming majority.

On the 25th of April last, the City made an application to the Board for the approval of the plans for the construction of the civic car lines on Gerrard Street and Coxwell Avenue from Greenwood Avenue to Main Street, and on St. Clair Avenue from Yonge Street to the Grand Trunk Railway crossing. The Board, in an opinion dated the 6th day of May, 1911, declined to approve the plans and profiles until the City furnished us with particulars of the whole scheme for building equipping, maintaining and operating the civic car lines. We stated in that Opinion that we required to know all the streets the City intended to use for the lines, the mileage, the kind of rail, the character of the construction, kind of car barns and repair shops the number and kind of cars to be operated and an estimate of the cost of construction, operation and maintenance and of the revenue to be derived from the enterprise. The City have complied with this demand of the Board and have furnished us with the required particulars and details of the scheme. The Board have approved of the plans and profiles and of the scheme generally. We are informed that the City have ordered the rails and other material necessary for the construction of the lines.

We do not think we require to wait until the last spike is driven before determining that Section 57 of the Ontario Railway Act of 1906 shall apply to the City's and the Company's street railways. To do so would result in useless and wasteful duplication: unnecessary car barns and repair shops would be constructed, and the employment of unnecessary labour, etc., would be compelled. We deem it expedient and in the public interest that the City should be spared this without hurt to the Company, and that there should be an interchange of traffic, and therefore we make the determination asked for by the City.

We think that it would be in the public interest, when the City has constructed the tracks, cars, overhead work, in other words have completed and equipped the railway, to arrange for its operation with the present street railway as one system, so that people could be carried from one part of the City to any other part for one fare. This arrangement should be made on reasonable terms. If the City and the Company cannot agree upon what the Company should pay for this addition to their present system and the additional revenue to be derived therefrom, the questions in dispute might be settled by arbitration.

Mr. Osler expressed his alarm that the City might endeavor to get back from the Company without compensation some of the fruit of the Company's franchise and the enormous risk and obligations the Company had assumed in the early days of street railway enterprise in the city. Such a design would certainly not be common honesty, and beneath the dignity of a great city. Mr. Drayton solemnly assured the Board that the City had no intention of trespassing on the Company's contractual rights, or disturbing their proprietary interests, that the City's sole object was to provide a street car service for the people in the districts recently annexed to the City in the most sensible, convenient, effective and economical way possible, without financial loss to the Company. With the assurance that the rights of the Company will be respected, we have less hesitation in making this Order. We hope the result will be an improvement to the street car service for the public.

The Board makes no order for costs except that the City is required to pay $20 for stamps on the formal order.

Dated at Toronto, this Twenty-fourth day of June, 1911.

(Sgd.) JAMES LEITCH,
Chairman.
(Sgd.) A. B. INGRAM,
Vice-Chairman.
(Sgd.) H. N. KITTSON,
Commissioner.

PROCEDURE FILE 978.

Application by the Town of Southampton, under 8 Edw. VII., C. 51, sec. 3, for validation of its By-law No. 554, and debentures. ($7,500 for extension of waterworks system).

June 13. Application and material filed, considered and approved.

July 6. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Statutory Declarations of William McGregor, Mayor, and James Christie Eckford, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 554 intituled "By-law Number 554 of the Corporation of the Town of Southampton. A By-law to provide for an extension of the Waterworks System in the Town of Southampton, in the County of Bruce, in the Province of Ontario, and to authorize the issue of Debentures of the said Town to the amount of $7,500.00 for the purpose of raising the sum required therefor," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Southampton, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 979.

Application by the Norfolk County Telephone Company, Limited, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Erie Telephone Company, Limited.

June 16. Agreement filed.

July 17. Board appoints Friday, the 21st inst., 11.30 a.m., at its Chambers, to hear representatives of above Companies, as requested by them.

July 21. Hearing. Judgment reserved.

July 27. Judgment. Agreement to be approved when clauses 2, 3, 6 and 7 are eliminated.

PROCEDURE FILE 980.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Town of Berlin.

June 16. Agreement filed.

June 27. Order.

PROCEDURE FILE 981.

Application by the Town of Lindsay, under 8 Edw. VII., c. 51, for validation of By-laws 1169 and 1215, and the Debentures thereunder ($55,000.00 to erect Public Schools, &c.).

June 17. Application and material filed (copies of each By-law on P.F. 922).

Order.

Upon the Application of the said Corporation, and upon reading the Notice of Application filed by Messrs. McLaughlin, Peel, Fulton & Stinson, Solicitors for the Applicants, the Affidavits of Robert M. Beal, Mayor, and Duncan Ray, Clerk, of the said Town, the certified copy of each of the said By-laws and the other material filed,

The Board orders that the said By-law No. 1169, intituled "Corporation of Lindsay By-law No. 1169. A By-law to authorize the Municipal Council of the Town of Lindsay to raise the sum of $55,000.00 for the erection of two new Public School Houses and the making of improvements to two other Public School Houses in the Town of Lindsay," as amended by By-Law No. 1215, intituled "By-law Number 1215. A By-law to amend By-law Number 1169 and to provide for the payment of an increased rate of interest on the debenture debt created thereunder, and for levying the required rates and to provide for a different mode of payment of said debenture debt," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of The Ontario Municipal Securities Act, 1908," that certificates be granted approving the said By-laws of the Municipal Corporation of the Town of Lindsay, and declaring the same valid and binding, and that their validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-laws be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 982.

Application by the Town of Aurora, under 8 Edw. VII., c. 51, for validation of By-law 337 and the debentures thereunder ($10,000 for Bonus Loan to the Positive Clutch and Pulley Works, Limited).

June 19. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading Affidavits of Sylvester Herbert Lundy, Clerk, and William J. Baldwin, Mayor, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law, Number 337, intituled "By-law No. 337. Being a By-law to authorize the loan of Ten Thousand Dollars ($10,000) to the Positive Clutch and Pulley Works, Limited, for the purpose of purchasing a site and erecting thereupon a factory in the Town of Aurora, to manufacture clutches, pulleys, etc," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving of the said By-law of the Municipal Corporation of the Town of Aurora, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 983.

Application by the Bell Telephone Company, under 10 Edw. VII., c. 84, sec. 10, for approval of agreement with the Howick Telephone Company, (Charter applied for).

June 19. Agreement filed.

June 23. Letter to Secretary of each Company, advising that Agreement cannot be approved unless clauses 3, 8 and 17a are struck out.

PROCEDURE FILE 984. (P.F.P. 83).

Application by the City of Fort William, for approval of Plans, Stress sheets, specifications &c., of Street Railway Subway at James Street.

June 19. Plan, Stress Sheets and Specifications filed.

June 26. Plan, Stress Sheets and Specifications approved on Report of Board's Engineer.

June 26, 1911.

The Chairman of the Ontario Railway and Municipal Board, Toronto.

SIR,—I have examined the plans of the Street Railway subway at James Street, Fort William, under the tracks of the C. N. R., C. P. R. and G. T. P. railways, and have to report that the structure appears amply strong enough to carry "Class Extra Heavy" loading of the Board's specifications.

The top of the subway consists of 24" I Beams 2 feet apart, with an allowable bending moment of 248,800 foot lbs. per beam. This is sufficient to carry the above loading with the increment and allowance for impact and the dead weight of the fill as shown on the plans. The bearing at each end would require 17 inches and 18" are shown. The walls of the subway are 2'-6" thick with 1" square vertical rods on the tension faces 12" c to c and ¾" horizontal rods 12" c to c which allows enough

for the pressure of earth against the walls. The retaining walls in the open portion appear to have a sufficient quantity of steel in them to withstand the earth pressure. All this of course depends upon the proper precautions being taken and the nature of the soil upon which the structure rests, and the way in which the work is carried out. These points seem to be all covered in the accompanying specifications.

The headroom and clearances are all in accordance with the specifications of your Board.

Yours truly,

(Sgd.) H. W. Middlemist.

Procedure File 985 (I.C.) ($13,256.88)

Application by the Town of New Liskeard, under 8 Edw. VII., c. 51, for validation of By-law 181 (as amended by By-law 204) and the Debentures thereunder ($13,256.88 for Sewers).

June 27. Application and material filed. Applicant's Counsel heard. Application approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Statutory Declarations of James Harvey Brown, Acting Mayor, and Morley Franklin Pumaville, Acting Clerk, of the said Town, the certified copy of each of the said By-laws, and the other material filed.

The Board orders that the said By-law No. 181, intituled "By-law No. 181. A By-law to provide for borrowing money by the issue of debentures secured by local special rates on the property fronting or abutting on Wedgwood and Farah Avenue between Edith Street and Lake Shore Road on the Lake Shore Road and Paget Street, between Farah Avenue and Lot number 361 on the west side of Paget Street, and the south limit of lot No. 37 on the east side of Paget Street, on Wellington Street south of Whitewood Avenue at a point fifteen feet north of the north limit of lot No. 18 on the east side of Wellington Street to the centre of Whitewood Avenue, on Mary Street between the north limit of Lot No. 19 to Whitewood Avenue, on John Street between Spruce Street and Whitewood Avenue, on Wellington Street between the north-east angle of lot No. 2 on the west side of Wellington Street and Whitewood Avenue, on May Street between Pine Avenue and Murray Street, on Pine Avenue between Kendal Avenue and May Street, on Murray Street between May Street and Katharine Street, for construction of sewers on the said portions of said streets." as amended by By-law No. 204, intituled "By-law No. 204. A By-law to authorize a change in the mode of issue of the debentures authorized by By-law No. 181 of the Town of New Liskeard passed on the 11th day of October, 1910, from that defined in the said By-law," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that certificates be granted approving the said By-laws of the Municipal Corporation of the Town of New Liskeard, and declaring the same valid and binding, and that their validity is not open to question in any Court on

any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-laws be also approved, and that the same be certified as provided by the said Act.

(Sgd.) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

Procedure File 986.

Application by the City of Ottawa, under 6 Edw. VII., c. 34, sec. 21, for approval of Waterworks Extension By-law. ($50,000.)

June 28. Application and material filed, and considered. Letter for proof that no debentures were issued under By-law 3191. (See P.F. 836.)

July 4. Proof required filed, and Order issued approving By-law.

Upon the application of the above-named Corporation and upon reading the Notice of Application, a copy of the said By-law and the Affidavits of James A. Ellis and Newton J. Ker, the City Treasurer and City Engineer, respectively, of the said Corporation filed,

The Board orders that the said By-law of the said Corporation, intituled "By-law Number ——, a By-law to authorize the issue of debentures to the amount of $50,000.00 for Waterworks purposes," be and the same is hereby approved.

(Sgd.) A. B. Ingram,

(Seal.)

Vice-Chairman of The Ontario Railway & Municipal Board.

Procedure File 987.

Application by the Town of Steelton, under 1 Geo. V., c. 58, sec. 54, for approval of Form of Local Improvement By-law 178, ($10,980 to pave Wellington Street.)

June 29. Application and form of By-law filed.

Procedure File 988.

Application by the Town of Steelton, under 1 Geo. V., c. 58, sec. 54, for approval of Form of Local Improvement By-law 179, for granolithic sidewalks.

June 29. Application and form of By-law filed.

Procedure File 989.

Between:—

The Durham Union Telephone Company,

Applicant.

—and—

The Port Hope Telephone Company, Limited,

Respondent.

(Application for proper connection, etc., under 10 Edw. VII., c. 84, sec. 9.)

July 4. Application, map and copy of agreement, as tendered, filed.

July 17. Appointment issued for Hearing at Board's Chambers at 11.30 a.m., on 27th inst.

July 29. Hearing adjourned to date to be fixed in September next. Board's Expert, Francis Dagger, in meantime to inspect, negotiate and report to Board.

October 6. Order issued.

This application having come before the Board for Hearing on July 22nd, 1911, in the presence of both parties, and upon hearing what was alleged by those persons on behalf of the Applicant and Respondent, and the Board having reserved judgment pending a Report by its Expert, Francis Dagger, Esquire, who was appointed and directed by the Board to visit the location in question for the purpose of inspecting the respective telephone systems of the Applicant and Respondent, and negotiating with a view to arranging a settlement between the Applicant and Respondent, and to report to the Board, and the said Francis Dagger having reported that a settlement has been arranged between the Applicant and Respondent, and that a memorandum of Agreement incorporating the same has been signed by both parties, duplicate original of which memorandum is hereto annexed,

The Board orders that the Memorandum of Agreement, dated the Fourth day of October, 1911, made between the said Applicant of the First Part and the said Respondent of the Second Part, be and the same is hereby approved, save and excepting clauses 17 and 18 thereof.

And the Board further orders and directs that all work provided for in clauses 5 and 6 of the said Agreement shall be completed and an interchange of service established between the Telephone systems of the Applicant and Respondent within sixty days from the date hereof.

And the Board further orders that the Applicant and Respondent shall carry out the terms, stipulations and conditions of the said Agreement as provided by the various clauses thereof, save and excepting clauses 17 and 18.

And the Board makes no Order as to costs, except that the Applicant shall pay $15.00 for Law Stamps on this Order.

(Sgd.) A. B. Ingram,
Vice-Chairman of The Ontario Railway & Municipal Board.

(Seal.)

Procedure File 990.

The Ontario and Minnesota Power Company, Ltd.,

vs.

Fort Frances.

(Assessment Appeal $600,000.00.)

July 4. Notice of Application filed.

July 11. Further material filed by Appellants.

September 20. Board appoints 18th Oct., 11.30 a.m., at its Chambers for Hearing.

October 13. Board appoints 8th Nov., 11 a.m., Courthouse Fort Frances, for Hearing.

Oct. 23. Board appoints 15th Nov., 11 a.m., Town Hall, Fort Frances, for Hearing.

Nov. 7. Hearing adjourned *sine die*.

PROCEDURE FILE 991 (P.F.P. 84) (P.F.P. 86).

Application by the Toronto Suburban Railway Company, under sec. 59 of "The Ontario Railway Act, 1906," for approval of Plan, Profile and Book of Reference of its proposed line from its present terminus at Lambton Mills to the Western limit of the Township of Etobicoke.

July 6. Application and Plan, Profile and Book of Reference filed (See P.F.P. 84.)

Board appoints Friday, the 21st inst., at 11.30 a.m., at its Chambers, and directs notice to be served on R. Home Smith, Esquire.

July 8. Letter from Applicant's Solicitors asking that application stand, pending possible withdrawal for alteration.

July 27. Plan and Profile and Book of Reference of amended location of proposed line from Lambton to Islington filed, (P.F.P. 86) and referred to J. F. H. Wyse, Consulting Engineer, for Report.

August 1. Engineer's Report filed and Plans approved and certified.

TORONTO, ONT., August 1st, 1911.

The Ontario Railway and Municipal Board, Manning Chambers, Toronto.

Re the Toronto Suburban Railway.

GENTLEMEN,—Complying with your instructions relative to plans and profile of the Toronto Suburban Railway extension from Lambton to Islington, would state plans first filed are identical with the revised plans as far as Islington Road. The plans (as revised) west of Islington take the north side of Dundas Street, instead of the south side. The first plans show the road laid out for 4.4 miles. The surveys have as yet not been made for the revised plans on the north side of Dundas Street beyond 2.54 miles.

Mr. Wilkie, their chief engineer, tells me the crossing of Dundas Street at Lambton will be overhead and have a clearance of about 17 feet, not shown on the plan. All other crossings will be level, except the C.P.R. at Islington, which they will cross under with about 16 ft. clear.

All of this extension is within the townships of Etobicoke (County of York), except about 1,500 feet which is within the township of York.

I would recommend the approval of these plans.

Respectfully submitting the above, I am,

Yours very truly,
(Sgd.) J. F. H. WYSE.

PROCEDURE FILE 992.

H. Williams,

vs.

Town of Fort Frances.

(Assessment Appeal $40,000.)

July 7. Notice of Appeal received.

September 20. Board appoints 18th Oct., 11.30 a.m., at its Chambers, for Hearing.

Oct. 13. Board appoints 8th Nov., 11 a.m., at Courthouse, Fort Frances, for Hearing.

October 23. Board appoints 15th Nov., 11 a.m., at Town Hall, Fort Frances.

November 30. Order for Commission to take evidence *viva voce*; Commissioner, W. H. Elliott, Local Registrar, H. C. J., Fort Frances. Commission returnable 30th December, 1911.

December 11. Commission issued.

December 26. Date for return of Commission extended to January 10th, 1912.

PROCEDURE FILE 993.

Application by the City of Belleville, under 8 Edw. VII., c. 51, for validation of By-law No. 1639, and the debentures thereunder ($25,000 for Bonus Loan to Marsh and Henthorn, Limited.)

July 8. Application and material filed. Appointment for Hearing issued for 14th inst., at 11.30 a.m., at Board's Chambers.

July 11. Further material filed.

July 14. Hearing. Counsel appeared in support and in opposition to application, and after hearing Counsel, Board adjourned Hearing to 28th inst., at 11.30 a.m., at its Chambers.

July 28. Hearing. Judgment reserved pending launching of Proceedings to quash the By-law.

Aug. 7. Hearing adjourned by consent, *sine die*, pending result of motion to quash the By-law.

October 31. Affidavit of W. S. Morden filed, *re* application to quash the By-lay. (W. S. Morden will submit draft Order for validation.)

November 18. Order issued.

Upon the application of the Municipal Corporation of the City of Belleville, and upon reading the Notice of Application, certified copy of said By-law number 1639 and the several affidavits filed and upon hearing what was alleged by counsel for said City of Belleville and John C. McCarthy a ratepayer who intervened upon the said application.

It is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act 1908," that a certificate be granted approving the said By-law Number 1639 of the Municipal Council of the Corporation of the City of Belleville and declaring the same valid and binding and that its validity is not open to question in any Court on any ground whatever, and that the debentures to be issued under the authority of and in accordance with the said By-law are also approved and that the same be certified as provided by the said Act.

And the Board makes no order as to costs except that the Applicants shall pay Fifty Dollars for Law Stamps on this Order.

(Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 994. (I. C. $9,000.)

Application by the Village of Havelock, under 8 Edw. VII., c. 51, for validation of By-law 252 and the debentures thereunder, ($9,000 for concrete walks).

July 10. Application and material filed.

24. Material completed and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Hall, Hayes & Hall, Solicitors for the Applicant, the Affidavits of Joseph Knox, Reeve, and James W. Bryans, Clerk, of the Municipal Corporation of the Village of Havelock, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 252, intituled "By-law No. 252. A By-law to provide for borrowing the sum of $9,000 for the purpose of constructing concrete sidewalks in the Village of Havelock," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Village of Havelock, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) A. B. Ingram,
Vice-Chairman of The Ontario Railway & Municipal Board.

(Seal.)

Procedure File 995.

Application by the Village of Eastview, under 8 Edw. VII., c. 51, for validation of By-law No. 10, and the debentures thereunder. ($3,000 for Schoolhouse.)

July 14. Application and material filed.

July 21. Application and material considered and approved.

Order.

Upon the application of the said Corporation, filed by Messrs. Christie, Greene & Hill, Solicitors for the Applicant, and upon reading the Affidavits of Camille Gladu, Reeve, and Nathaniel John Squire, Acting Clerk, of the said Village, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 10, intituled "By-law No. 10. To raise the sum of three thousand dollars to provide for the erection of a Schoolhouse and additions thereto, for the purposes of the Public School Board of the Union School Section of the Village of Eastview," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Village of Eastview, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) A. B. Ingram,
Vice-Chairman of The Ontario Railway & Municipal Board.

(Seal.)

PROCEDURE FILE 996. (I.C. $27,000.)

Application by the Town of Penetanguishene, under 8 Edw. VII., c. 51, for validation of By-law 448, and debentures. ($27,000 to purchase Electric Light Plant.)

July 15. Application and material filed.

July 18. Application and material filed, considered and approved.

Order.

Upon the Application of the said Corporation, and upon reading the Affidavits of John Brown Jennings, Mayor, William Hutchinson Hewson, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 448, intituled "By-law No. 448 of the Corporation of the Town of Penetanguishene. To approve of an Agreement entered into between this Corporation and The Penetanguishene and Midland Electric Street Railway, Light and Power Company, Limited, for the purchase by this Corporation of the Electric Light plant and equipment of the said Company; and to provide for the issue of debentures to the amount of $27,000 to carry out the said purchase agreement, and for the installation of power under Agreement with Hydro-Electric Power Commission of Ontario, and to provide funds for further extensions," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Penetanguishene, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) A. B. INGRAM,
Vice-Chairman of The Ontario Railway & Municipal Board.

(Seal.)

PROCEDURE FILE 997.

Toronto

vs.

Toronto and York Radial Railway Company. (Mimico Division.)
(Speed.)

July 15. Application filed.

July 21. Amended application filed, for signals &c., &c., as well as regulation of Speed.

July 21. Owing to necessity for early disposal of this matter in the interests of Public Safety, Board appoints 26th inst., at 11.30 a.m., at its Chambers, for Hearing.

July 26. Hearing adjourned to 28th inst., at 11.30 a.m., at Board's Chambers; J. F. H. Wyse to inspect and report in interim.

July 28. Engineer's Report filed.

Hearing. Board orders protection of crossings as recommended in Engineer's Report, City to pay watchmen in the meantime, without prejudice to their objection

to the Board's jurisdiction to make the Order, or to their right to recover from the Railway Company.

July 28. Interim Order issued.

Upon the application of the Municipal Corporation of the City of Toronto, in the presence of Counsel for the Applicant and Respondent, and upon hearing what was alleged by Counsel aforesaid, and the Board having directed its Engineer to inspect and report, and the said Engineer's report on inspection having been filed and considered,

The Board orders that until permanent protection is provided by a relocation of the Respondent's tracks, a watchman be kept continuously on duty at Keele Street Crossing, when open for use, to protect the public crossing the Respondent's line of Railway at this point.

And the Board orders that a watchman be kept continuously on duty at the point where the Eastern entrance to High Park crosses the Respondent's line of Railway (known as Mimico Division, Stop 1) to protect the public crossing the Respondent's line of Railway at this point.

And the Board orders that at the point where Howard Avenue, or the Western entrance to High Park, crosses the Respondent's line of Railway, a Watchman be kept continuously on duty to protect the public crossing the Respondent's tracks at this point.

And the Board orders that the necessary Watchmen to provide a continuous twenty-four hours service or protection at the above crossings be, in the meantime, provided and paid by the Respondents, provided that the Applicants undertake to pay the expense of providing the above-mentioned Watchmen if it shall be ultimately ordered by the Board, or any Court of competent jurisdiction, that the City pay the expense of furnishing the said Watchmen.

And the Board further orders that at the points where Ellis Avenue and Windermere cross the Respondent's line of Railway, that the Respondents stop all their cars within fifty feet before reaching the said points of crossing in order that the public using the said crossing may be adequately protected.

And the Board further orders that at the corner where James Street crosses the Respondent's line of Railway, that the Respondents reduce the speed of all their cars to a rate not exceeding four miles an hour, in order that the public using the said crossing may be protected as recommended in the said Report, and in view of the dangerous character of the said crossings, the Board orders that all of the said Respondent's cars be operated at such a moderate rate of speed and kept so under control that they may be brought to a standstill immediately in case of necessity.

And the Board also orders that the provisions of this Order be observed, performed and complied with immediately and without delay.

And the Board reserves further directions and costs.

(Sgd.) A. B. Ingram,
Vice-Chairman of The Ontario Railway & Municipal Board.

(Seal.)

Procedure File 998.

Application of the Bell Telephone Company, under 10 Edw. VII., c. 84, for approval of agreement with the Town of Paris.

July 15. Agreement filed.

July 27. Order.

PROCEDURE FILE 999.

Application by the Inwood Rural Telephone Company, Limited, under 10 Edw. VII., c. 84, sec. 10, for approval of Agreement with the Advisory Board of the Brooke Municipal Telephone System.

July 15. Agreement filed.

September 6. Notice to applicants that Board would not approve agreement if Clause 1 be eliminated.

PROCEDURE FILE 1,000.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., chap. 84, for approval of an agreement with the Town of Cornwall.

July 20. Agreement filed.

July 29. Order.

PROCEDURE FILE 1,001.

Application by the Town of Ingersoll, under 6 Edw. VII., c. 34, sec. 1, for annexation to said Town of part of the Township of North Oxford.

July 20. Declaration of Expediency of, and Petition for Annexation filed, and considered, and letter to Applicants for further material in support of application.

Nov. 9. Additional material filed, and Board appoints, 24th inst., at 2.30 p.m., at its Chambers for Hearing.

Nov. 17. Further material filed.

Nov. 20. Further material considered and approved; parties notified that they need not attend on the 24th inst.

Nov. 20. Order (Published in "Ontario Gazette").

Upon the Application of the Municipal Corporation of the Town of Ingersoll, and of Stephen King, Esquire, owner and only ratepayer according to the last revised assessment roll of the said portion of said Lot Number Thirteen, and upon reading the Resolution passed by the Municipal Council of the Town of Ingersoll, at a meeting of said Council duly convened on the Thirteenth day of July, 1911, declaring that it is expedient to have the said land annexed to said town, and upon reading the Petition for such annexation signed by the said Stephen King, and upon reading the Resolution of the Municipal Council of the Township of North Oxford, consenting to the annexation of the said lands to the said town, and the other material filed in support of this application,

The Board doth order and proclaim that the portion of Lot Number Thirteen in the Fourth Concession of the Township of North Oxford, in the County of Oxford, containing twenty-five acres more or less, and more particularly described as follows: Commencing at a point in the southerly limit of the right of way of the Grand Trunk Railway Company, where the centre line of the said lot intersects the said southerly limit, thence southerly along the said centre line to the River Thames, thence westerly along the River Thames with the stream to the easterly limit of Pemberton Street, thence northerly along the easterly limit of Pemberton Street to the southerly limit of the right of way of the Grand Trunk Railway Company,

thence easterly along the said southerly limit to the place of beginning, be and the same is hereby annexed to the Town of Ingersoll, the said annexation to take effect on the day of the date of this Order.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1002. (SEE P. F. 1005.)

Application by the Town of Bracebridge, under 8 Edw. VII., c. 51, for validation of By-law 276 and the debentures issued thereunder ($3,447.45 for sidewalks).

July 22. Application and material filed.

Sept. 5. Additional material having been filed as directed, considered and approved.

Order.

Upon the Application of the said Corporation, and upon reading the Notice of Application filed by George Mahaffy, Esq., Solicitor for the Applicant, the certified copy of the said By-law, the affidavits of Peter Hutchison, Mayor, and Alexander C. Salmon, Clerk, of the said Town, and the other material filed.

The Board orders that the said By-law No. 276, intituled "By-law 276. To provide for the construction of sidewalks in the Town of Bracebridge, and to authorize the issue of Debentures of the said Town to the amount of $3,447.45, for the purpose of raising the sum required therefor," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Bracebridge, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) A. B. INGRAM,
Vice-Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1003. (P. F. P. 85.)

Application by the Public Works Department of Ontario, for approval of Stress Sheet of Highway and Railway Bridge over the Kaminstiquia River, in the Township of Paipoonge, near Slate River.

July 22. Stress Sheet filed.

Aug. 14. Amended Stress Sheet filed as suggested by the Board.

Oct. 9. Amended Stress Sheet considered, approved and certified.

July 25th, 1911.

The Vice-Chairman of the Ontario Railway and Municipal Board, Toronto.

Sir,—I have examined the stress sheet prepared by the Dickson Bridge Company of Campbellford, Ont., for the Combination Highway and Electric Railway Bridge over the Kaministiquia River.

The highway is carried along the bottom chord of the trusses, and should the Electric Railway come on the bridge it will be carried along the top chord. The bridge consists of three spans of 100 feet each. The trusses are of the Pratt type of six panels, with built bottom chords composed of angles.

The floor beams for the roadway are 18″ I beams, 55 lbs. to the foot, and are connected together by six 10″ I beams, 25 lbs. to the foot. These carry a 14 foot roadway floor, composed of 6″ of concrete. This floor is amply strong enough to carry the loading given, viz., 100 lbs. per square foot.

At present the arrangement for carrying the electric railway is not shown on the stress sheet, except that it is noted that the floor beams will be 24″ I beams, 80 lbs. per foot, which will be quite strong enough for the 40 ton cars given in your specification. It is the intention, according to the remark on the sheet, to put in three 15″ I beam stringers, weighing 42 lbs. per foot each, at 4 feet centres. As the detail of this is not shown, I am not yet prepared to comment on this, but I would prefer two stringers, one under each rail, say, 6 feet centres and strong enough to carry the maximum loading with impact, as per your specification. These stringers should be well braced together with diagonals, as stated in your specification.

Coming now to the loading for the electric railway, I would remark that if freight is to be carried on it, "Class Especial Light" loading should be used instead of the 40 ton car loading given, and this would increase the stresses given on the sheet. As I do not know the nature of the traffic to be carried, I would suggest that your Board satisfy yourselves on this point before signing the plans, and if you find freight is to be carried, the stresses must be increased to conform to your requirements for "Class Especial Light." At any rate a new plan should be submitted to the Board showing the floor arrangement and method of bracing when the railway floor is put on. At present the plan merely shows the bridge completed as a highway structure with allowance in the trusses for the Electric Railway 40 ton car loading. Maximum floor beam concentrations should be used if they come to more than the distributed live loading on the truss.

Yours truly,

(Signed) H. W. Middlemist.

Procedure File 1004.

Application by The Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, sec. 10, for approval of agreements with Dr. E. J. Foster (Re connections at Fordwich and Gorrie).

July 24. Certified copies of agreements filed.

July 28. Letter to the Bell Company advising that agreement cannot be approved until restrictive clauses are eliminated.

Procedure File 1005. (See P. F. 1002.)

Application by the Town of Bracebridge, under 8 Edw. VII., c. 51, for validation of By-law 275 and debentures ($4,442.93, ratepayers' share of sidewalks).

July 24. Application and material filed.

Sept. 5. Additional material having been filed as directed, considered and approved.

Order.

Upon the Application of the said Corporation and upon reading the Notice of Application filed by George Mahaffy, Esq., Solicitor for the Applicant, the certified copy of each of the said By-laws, the affidavits of Peter Hutchison, Mayor, and Alexander C. Salmon, Clerk, of the said Town, and the other material filed,

The Board orders that the said By-law No. 275, intituled "By-law 275. To provide for the issue of Local Improvement Debentures to the amount of $4,442.93 to defray the ratepayers' share of the cost of certain concrete sidwalks constructed in the year 1910 as local improvements." as amended by By-law 280, intituled "By-law Number 280. To amend By-law Number 275 of the Town of Bracebridge," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that certificates be granted approving the said By-laws of the Municipal Corporation of the Town of Bracebridge, and declaring the same valid and binding, and that their validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-laws be also approved, and that the same be certified as provided by the said Act.

(Signed) A. B. Ingram,
Vice-Chairman of the Ontario Railway and Municipal Board.

(Seal.)

Procedure File 1006. (I. C.) ($2,296.88.)

Application by the Town of Midland, under 8 Edw. VII., c. 51, for validation of By-laws 764, and debentures ($2,296.88 for sewers).

July 25. Application and material filed.

Sept. 11. Application and material, being completed as directed, considered and approved.

Order.

Upon the Application of the said Corporation, and upon reading the Notice of Application filed by W. Finlayson, Esquire, Solicitor for the Applicant, the certified copy of said By-law No. 764, the affidavits of Frank Ramsden Weston, Clerk of the said Town, and the other material filed,

The Board orders that the said By-law No. 764, intituled "By-law No. 764. Of the Corporation of the Town of Midland, to provide for the issue of Local Improvement Debentures of the said Corporation to the amount of $2,296.88 to defray the cost of certain sewers laid down in the year 1908 as Local Improvements," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1906," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Midland, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) A. B. Ingram,
Vice-Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1007.

Township of Sandwich East

vs.

Sandwich, Windsor and Amherstburg Railway.
(For extension to Walkerville and Belt Line.)

July 26. Application filed.

Sept. 18. Order for Production issued on Application of Appellant's Solicitors.

Sept. 19. Order for Examination for Discovery of Respondent's Manager issued.

Board directs Reply to be delivered within fourteen days.

Oct. 28. Reply filed.

Nov. 16. Order issued for amendment of Application, by making the Windsor and Tecumseh Railway Company parties Respondent, herein.

Nov. 20. Board appoints 12th December, 2.30 p.m., at its Chambers, for Hearing.

Dec. 7. Hearing adjourned *sine die.*

Upon the application of the above-named applicant, and upon hearing the evidence adduced on behalf of the applicant, and upon hearing Counsel for the applicant, and upon reading the affidavit filed,

The Board orders that the applicant be at liberty to amend its application by adding the Windsor and Tecumseh Railway Company as parties respondent to this application, and that a copy of this order be served upon the said Windsor and Tecumseh Electric Railway Company and the Sandwich, Windsor and Amherstburg Railway, and that the said Windsor and Tecumseh Railway do file a reply to the claims made in the said application within ten days from the date of such service.

(Signed) JAMES LEITCH,
Chairman.

(Seal.)

PROCEDURE FILE 1008 ($26,289.80).

Application by the Town of Lindsay, under 8 Edw. VII., c. 51, for validation of By-law 1221, and Debentures ($26,289.80 for granolithic sidewalks).

July 26. Application and material filed.
Application allowed to stand at request of Applicant's Solicitors.

PROCEDURE FILE 1009 ($28,492.42).

Application by the Town of Lindsay, under 8 Edw. VII., c. 51, for validation of By-law 1222 and Debentures ($28,492.42, concrete sidewalks, etc.).

July 26. Application and material filed.
Application allowed to stand at request of Applicant's Solicitors.

PROCEDURE FILE 1010.

Application by the Bell Telephone Company of Canada for approval of Standard Form of Telephone Connecting Agreements.

July 21. Form of Agreement filed for approval.

Sept. 8. At request of applicants, allowed to stand until after Nov. 15th.

PROCEDURE FILE 1011.

Trust Deed dated the 15th day of July, 1911, made between the Toronto Suburban Railway Company, of the one part, and the British Empire Trust Company, Limited, of the other part, to secure issue of stock limited in the first instance to £540.000, etc., etc.

July 27. Deposited under 6 Edw. VII., c. 30, section 44, ss. 4, at 10.35 a.m., this 27th day of July, 1911.

PROCEDURE FILE 1012.

Application by the Village of Weston, under 6 Edw. VII., c. 34, sec. 21, for approval of By-law 534 ($33,000 for Extension of Electric Light and Waterworks Systems).

July 27. Application and material filed.

July 29. Application and material considered and approved.

Order.

Upon the application of the above-mentioned Corporation, and upon reading the Notice of Application filed by Messrs. Higgins & Douglas, Solicitors for the Applicant, the affidavits of Robert J. Bull, Reeve, and John Henry Taylor, Clerk, of the said village, the certified copy of the said By-law, and the other material filed.

The Board orders that the said By-law No. 534 of the Municipal Corporation of the Village of Weston, intituled "Village of Weston By-law No. 534. A By-law to authorize the borrowing of the sum of Thirty-three Thousand Dollars for the purpose of extending the Electric Light and Water Works Systems of the Municipality and to provide for the issue of Debentures to raise the sum required therefor," be and the same is hereby approved.

(Signed) A. B. INGRAM,

(Seal.) Vice-Chairman of the Ontario Railway & Municipal Board.

PROCEDURE FILE 1013.

Application by the Village of Weston, under 8 Edw. VII., c. 51, for validation of By-law 537, and debentures ($20.000 for school).

July 27. Application and certified copy of By-law filed. Notice to Applicants' Solicitor to file affidavits in support of application.

Nov. 3. Additional Material filed.

Nov. 6. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Higgins & Douglas, Solicitors for the Applicant, the affidavits of Robert J. Bull, Reeve, and John Henry Taylor, Clerk, of the said Municipality, the certified copy of the said By-law, and the other material filed.

The Board orders that the said By-law No. 537, intituled "Village of Weston By-law No. 537. A By-law to authorize the borrowing of the sum of Twenty Thousand Dollars for the purpose of building a new four-roomed public school on the Public School property, and to provide for the issue of Debentures to raise the sum required therefor," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving of the said By-law of the Municipal Corporation of the Village of Weston, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman Ontario Railway Commission Board.

PROCEDURE FILE 1014.

Application by the Bell Telephone Company, under 10 Edw. VII., c. 84, for approval of Agreement with the Town of Cobourg.

Aug. 5. Agreement filed.
Aug. 11. Agreement considered and approved.
Aug. 14. Order.

PROCEDURE FILE 1015.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, for approval of Agreement between the Town of Leamington.

Aug. 8. Agreement filed.
Aug. 30. Agreement considered and approved. Order.

PROCEDURE FILE 1016.

Application by the Bell Telephone Company, of Canada, under 10 Edw. VII., c. 84, for approval of Agreement with the Town of Listowel.

Aug. 10. Agreement filed.
Aug. 30. Agreement considered and approved. Order.

PROCEDURE FILE 1017.

Application by the Town of Port Hope, under 6 Edw. VII., c. 34, sec. 21., for approval of By-law 1044 ($15,000 for extending the Water Works System).

Aug. 11. Application and material filed, considered and approved.

Order.

Upon the application of the above named Corporation and upon reading the Notice of Application filed by Henry White, Town Solicitor, for the Applicant. the affidavits of John Wesley Sanders, Norman S. Choate, Treasurer, Robert Alexander Mulholland, Mayor, and Robert Gray, Secretary, Superintendent and Manager of the Waterworks System, of the said Town, the certified copy of the said By-law and the other material, filed.

The Board orders that the said By-law Number 1044 of the Municipal Corporation of the Town of Port Hope, intituled "By-law No. 1044, to authorize the issue of Debentures of the Corporation of the Town of Port Hope for the sum of Fifteen Thousand Dollars for the purpose of extending and improving the Waterworks System of the said Town," be and the same is hereby approved.

(Signed) A. B. INGRAM,
(Seal.) Vice-Chairman of the Ontario Railway & Municipal Board.

PROCEDURE FILE 1018.

The Consolidated Telephone Company, Limited, *vs.* The Mono Mills Telephone Association. (For intercommunication, etc.)

Aug. 17. Application filed.

Letter for further material.

PROCEDURE FILE 1019.

Application by the Town of Bracebridge, under 6 Edw. VII., c. 34, sec. 21, for approval of By-law 274 and Debentures ($8,300.00 to finish Electric Light Plant).

Aug. 18. Application and material filed.

Sept. 8. Application and material considered. Letter for affidavit *re* vote by Council on final passing of By-law.

Sept. 11. Affidavit filed as directed, considered and approved.

Order.

Upon the application of the above named Corporation, and upon reading the Affidavits of William C. Simmons, Superintendent of the Electric Light & Power Plants, George W. Ecclestone, Chairman of the Electric Light & Power Commission, Alexander Clare Salmon, Clerk, and Peter Hutchison, Mayor, of the said Town, the certified copy of the said By-law, and the other material filed.

The Board orders that the said By-law No. 274 of the Municipal Corporation of the Town of Bracebridge, intituled "By-law No. 274. A By-law for the purpose of raising by way of Debentures the sum of $8,300.00 for the purpose of finishing and completing the electric light and power plant of the Town of Bracebridge," be and the same is hereby approved.

(Signed) A. B. INGRAM,
(Seal.) Vice-Chairman of the Ontario Railway & Municipal Board.

PROCEDURE FILE 1120. (I. C. $7,000.)

Application by the Town of Gravenhurst, under 8 Edw. VII., c. 51, for validation of By-law No. 442, and debentures. ($7,000 for extension of Waterworks System.)

August 19. Copy of By-law filed.

September 1. Copy of By-law transmitted to Provincial Treasurer, for filing under 9 Edw. VII., c. 76, sec. 2.

September 21. Application and material filed.

September 22. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Malone, Malone & Long, Solicitors for the Applicant, the Affidavits of John David Vanstone. Mayor, and William Henry Cross, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 442, intituled "By-law No. 442 of the Town of Gravenhurst. A By-law of the Town of Gravenhurst to provide for the issue of debentures to the amount of $7,000.00 and for levying the necessary rates for the payment of the same," be, and the same is hereby, approved.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Gravenhurst, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,

(Seal.)

Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1021. (I. C. $3,000.)

Application by the Town of Gravenhurst, under 8 Edw. VII., c. 51, for validation of By-law No. 443 and debentures. ($3,000 for cement sidewalks and crossings.)

August 19. Copy of By-law filed.

September 1. Copy of By-law transmitted to Provincial Treasurer for filing under 9 Edw. VII., c. 76, sec 2.

September 21. Application and material filed.

September 22. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Malone, Malone & Long, Solicitors for the Applicant, the affidavits of John David Vanstone, Mayor, and William Henry Cross, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board Orders that the said By-law No. 443, intituled "By-law No. 443 of the Town of Gravenhurst. A By-law of the Town of Gravenhurst to provide for the issue of Debentures to the amount of $3,000.00 and for levying the necessary rates for payment of same," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Gravenhurst, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1022. (P. F. P. 88.)

THE MUNICIPAL CORPORATION OF THE TOWNSHIP OF MIDDLETON,

vs.

THE MUNICIPAL CORPORATION OF THE TOWNSHIP OF DEREHAM.

(Deviation County Line between Norfolk and Oxford Counties).

August 23. Application filed.

September 28. Reply directed within ten days.

September 18. Reply filed.

September 30. Order issued for Production by Respondent.

October 3. Order issued for Examination for Discovery of Alexander Bell, Respondent's Municipal Clerk.

October 10. Order issued for Production by Applicant.

October 12. Board appoints Friday, November 3rd, 2. pm., at its Chambers, for Hearing.

October 18. Respondent's affidavit on Production filed.

October 23. Order issued for Examination for Discovery of Appellant's Municipal Clerk.

October 27. Supbœna *duces tecum,* issued to Appellant's Solicitor.

October 31. Appellant's Affidavit on Production filed.

November 1. At request of Counsel Hearing arranged for 31st inst., at 2 p.m., at Board's Chambers.

November 21. Hearing. (Plans filed as Exhibits, see P. F. P. 88.) Judgment reserved pending view by Board.

December 4. View by Board.

December 11. Judgment.

Opinion of the Board.

Procedure File 1022.

This is an application by the Township of Middleton to have it declared that a road commonly called the John Pound and Forge Road is a deviation of the county line road between the townships of Middleton and Dereham, in lieu of the original county line, and for an order compelling the Respondents, the Township of Dereham, to keep up and maintain their proper proportion of the road. When the road in question was first opened, township boundary lines forming also county boundary lines were under the jurisdiction of the County Councils.

It is admitted that the road allowance between Middleton and Dereham was surveyed by the original crown surveyor. It is also admitted that it was impracticable to construct a road upon a portion of the county line between the Township of Dereham, in the County of Oxford, and the Township of Middleton, in the County of Norfolk, in consequence of the original road allowance being cut up by Nettle and Otter Creeks. The Minutes of the County Council of Norfolk of the 18th and 19th of June, 1867, By-law 141, passed the 21st day of June, 1867, and By-law No. 147, passed on the 30th of June, 1868, were put in. Copies of the proceedings of the County Council of Oxford, and By-law No. 130, of the year 1868, were also put in. A statement was filed with the Board of the amounts paid by the Townships of Middleton and Dereham for the construction and maintenance of the diverted county boundary road from 1867 down to February, 1909. It was admitted that Middleton and Dereham jointly maintained the deviated road down to that date. The expense of the deviation to get past the Forge Road Hill was paid for by the two townships.

It is admitted and it is clear to the Board that a deviation from the original road allowance was necessary; that the natural obstructions were such as to make it impracticable to build a road on the true boundary line, as laid out on the original crown survey; that the Minutes and By-laws of the Councils of Norfolk and Oxford were a joint act which constitute such deviation a public highway between the two townships of Middleton and Dereham. The joint action of these counties was not only sufficient to create the deviated road, but it has been followed by actual use ever since the road was opened in 1867 and 1868.

The Vice-Chairman and Commissioner Kittson have gone over the road, and see no reason why the deviated road should be disturbed, or that Dereham should be excused from paying its share of repair and maintenance?

The Board, therefore, declare that the road mentioned and described in paragraph 4*a* of the application, together with such deviations as may have been made for the purposes of construction, is now and has been a deviated road between the townships of Middleton and Dereham in lieu of the original county line which was never opened owing to difficulties of construction, and that the Township of Dereham is bound to keep up and maintain its proper proportion of the road.

The Board think that a fair disposition of the costs would be that each party should pay their own costs, and that each should pay $10.00 for the stamp on the formal order.

Dated this Eleventh Day of December, 1911.

(Signed) James Leitch,
Chairman, Ontario Railway and Municipal Board.

PROCEDURE FILE 1023.

Between:—

The City of Toronto,

Applicant,

—and—

The Toronto Railway Company,

Respondents.

(Lost Articles).

August 25. Application filed.
September 21. Board appoints 28th inst., 3 p.m., at its Chambers for Hearing.
September 28. Hearing adjourned *sine die* at request of Counsel.

PROCEDURE FILE 1024.

Application by the Seymour Power and Electric Company, under 6 Edw. VII., c. 30, sec. 56, for leave to construct an Electric Transmission Line across Point Ann Railway at Lot 19, Broken Front Concession, Township of Thessalon, in the County of Hastings.

August 29. Application and plan filed.

September 6. Application and plan considered and referred to Board's Engineer.

September 12. Board's Engineers Report filed, Engineer states that he has advised Applicants of contents of same.

September 19. Plan approved and certified, subject to compliance with Engineer's Report.

Engineer's Report complied with by the Company.

TORONTO, ONT., September 12th, 1911.

The Ontario Railway and Municipal Board, Manning Chambers, Toronto:

Re Seymour Power & Electric Co.'s application to cross Point Ann Railway at Lot 19 B. F. Concession, Township of Thurlow.

Gentlemen,—I would respectfully recommend your approval of this crossing on receipt of affidavit from the Seymour Power & Electric Company, that the insulators to be used on this crossing are to be the same as used by them on crossings at Lots 22 and 23, Township of Thurlow, south of Lehigh Cement Mills, Belleville, and Point Ann Railway in Lot 15 (of which insulators we have the manufacturers' affidavit of puncture and flash over test) and that the Seymour Power and Electric Company furnish you to be filed with these blueprints, a letter to the effect that the ground wires are to be omitted over this crossing.

Respectfully submitting the above, I am,

Yours truly,

(Signed) J. F. H. WISE.

PROCEDURE FILE 1025. (I. C. $95,000.)

Application by the City of Port Arthur, under 8 Edw. VII., c. 51, for validation of By-law 588, as amended by By-law 635, and debentures. ($95,000 for Park purposes.)

August 31. Application and material filed. Letter for further material, etc.

October 23. Further material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Langworthy & McComber, Solicitors for the Applicant, the Affidavits of Samuel Wellington Ray, Mayor, and James McTeigue, Clerk, of the said City, the certified copy of each of the said By-laws numbered 588 and 635, and the other material filed,

The Board orders that the said By-law No. 588, intituled "City of Port Arthur, No. 588, By-law authorizing the issue of debentures for Park purposes to the amount of $95,000," as amended by By-law No. 635 intituled "City of Port Arthur, No. 635, By-law to amend By-law No. 588," be and the same is hereby approved, and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-laws of the Municipal Corporation of the City of Port Arthur, and declaring the same valid and binding, and that their validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-laws be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1026.

Application by Township of Muskoka, under 3 Edw. VII., c. 19, sec. 632, ss. 2, and sec. 640, ss. 11 (*a*) for approval of By-law 248 closing and selling part of Road allowance at Gull Lake.

August 31. Application and material filed.

September 6. Application and material considered. Letter for further proof of particulars of proceedings taken.

September 11. Further material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the certified copy of the said By-law, the affidavits of Robert McKay, Reeve, and James Brydon, Clerk, of the said Township, and the other material filed.

The Board orders that the said By-law No. 248, intituled "Township of Muskoka By-law No. 248," be, and the same is hereby approved under and in pursuance of Subsection 2, of Section 632, and Subsection 11, of Section 640, of "The Consolidated Municipal Act, 1903," and Clause (*e*) of Section 53 of "The Ontario Railway and Municipal Board Act, 1906."

(Signed) A. B. INGRAM,
Vice-Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1027.

Application by Frank Stewart Scott, under 6 Edw. VII., c. 34. sec. 1, for annexation of parts Lot 6, Con. 11, Township of North Dumfries, to Town of Galt.

August 31. Application and material filed.

October 17. Additional material filed as directed.

October 19. Additional material considered and approved.

Order.

Upon the application of the Municipal Corporation of the Town of Galt, and of Frank Stewart Scott, sole owner of the lands hereinafter described, and upon reading the Resolution passed by the Municipal Council of the Town of Galt at a regular Sitting held on the Fifth Day of June, 1911, declaring that it is expedient that the said portion of the Township of North Dumfries adjacent to the Town of Galt be annexed to the said Town, and upon reading the Petition for such annexation signed by the said Frank Stewart Scott and the Resolution of the Municipal Council of the said Town of Galt passed at a regular Sitting held on the second day of October, 1911, consenting to the annexation to the said Town of the said lands on the terms mentioned in the said Petition, and the resolution passed by the Municipal Council of the said Township of North Dumfries at a regular meeting held on October 14th, 1911, consenting to the annexation to the Town of Galt of the said lands on the terms mentioned in the said Petition, and the other material filed in support of this Application,

The Board doth order and proclaim that the following lands, namely, "all and singular those certain parcels or tracts of land situate, lying and being in the said Township of North Dumfries, and being composed of:

"*Firstly*: A part of lot number six in the Eleventh Concession of the said Township of North Dumfries, containing by admeasurement two and one-half acres, be the same, more or less, and butted and bounded as follows: Commencing at the distance of nine chains and sixty links in a course north fifteen degrees forty minutes west from the southwest angle of said lot; thence continuing said course north fifteen degrees forty minutes west two chains sixty-nine links more or less to the southwest angle of lands conveyed by deed registered in book No. 15, as No. 5530; thence north seventy-six degrees thirty minutes east eight chains fifty-two links more or less to the southwesterly limit of the Dundas and Waterloo macadamized road; thence along said road south forty-nine degrees forty-three minutes east three chains thirty-two links to the northerly limit of the parcel of land thirdly herein described; thence south seventy-six degrees thirty minutes west ten chains twenty-eight links more or less to the place of beginning.

"*Secondly*: A part of said lot number six containing by admeasurement six acres be the same more or less: Commencing at the southwest angle of said lot; thence north fifteen degrees forty minutes west nine chains sixty links more or less to a stake; thence north seventy-six degrees thirty minutes east six chains twenty-five links more or less (or one quarter of the width of the whole lot); thence south fifteen degrees forty minutes east nine chains sixty links more or less to the road allowance between the tenth and eleventh concessions; thence along said road allowance south seventy-six degrees thirty minutes west six chains twenty-five links more or less to the place of beginning.

"*Thirdly*: A part of said lot number six containing by admeasurement five acres two roods and twenty-four perches be the same more or less; commencing on the northerly side of the road allowance between the tenth and eleventh concessions at the centre of the line in front of the said lot; thence north fifteen degrees forty minutes west six chains forty-three links more or less to the Waterloo Road; thence along said road north forty-nine degrees forty-three minutes west three chains ninety-five links more or less to a stake; thence south seventy-six degrees thirty minutes west four chains three links more or less to a stake; thence south fifteen degrees forty minutes east nine chains sixty links more or less to the road allowance aforesaid; thence along said road allowance north seventy-six degrees thirty minutes east six chains twenty-five links more or less to the place of beginning; said three above described parcels of lands being the lands conveyed by William Robert Field and others to the said Frank Stewart Scott, by Deed dated the second day of May, one thousand nine hundred and seven, and registered in the Registry Office of the County of Waterloo, in book number 20, for the Township of North Dumfries, as number 7833.

"*Fourthly*: A portion of the south half of said lot number six, bounded on the south side by the road leading from the toll gate into Galt; on the east side by the Waterloo Road running from Dundas to Waterloo; on the west by the property formerly owned by one Thomas Field but now by the said Frank Stewart Scott; and on the north by a line parallel to the southern limit of said lot and a uniform distance of four chains therefrom, being the lands conveyed to the said Frank Stewart Scott by one Joseph Murray Irwin by Deed, dated thirty-first of August, 1908, registered fifth of June, 1911, as number 8287, be and the same are hereby annexed to the Town of Galt, said annexation to take effect on the day of the date of this Order, upon and subject to the following terms and conditions, namely: That the Assessment of the lands comprised therein be fixed at the amount for which they are at present assessed for a term of five years from the date of the annexation, and that thereafter such portions thereof as may not be sold and divided into lots, shall be assessed as farm lands."

(Signed) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1028.

Application by H. F. McKendrick, and Thomas B. Fowler, et al., under 6 Edw. VII., c. 34, sec. 1, for annexation of portions of Township of North Dumfries, to Town of Galt.

August 31. Application and material filed.
October 17. Additional material filed as directed.
October 19. Additional material considered and approved.

Order.

Upon the application of the Municipal Corporation of the Town of Galt, and of H. F. McKendrick, Esquire, M.D., and others, being a majority of the ratepayers of the said portions of the said Township, and upon reading the Resolution passed by the Municipal Council of the Town of Galt, at a regular sitting held on

the fifth day of June, 1911, declaring that it is expedient that the said portions of the said Township adjacent to the Town of Galt be annexed to the said Town, and upon reading the petition for such annexation signed by the said H. F. McKendrick, and others, constituting a majority of the ratepayers of the said portions of the said Township, and the Resolution of the Municipal Council of the said Town passed at a regular sitting held on the second day of October, 1911, consenting to the annexation to the said Town of the said lands on the terms mentioned in the said Petition, and the Resolution passed by the Municipal Council of the said Township of North Dumfries at a regular meeting held on the fourteenth day of October, 1911, consenting to the annexation of the said lands to the Town of Galt on the terms mentioned in the said Petition, and the other material filed in support of this Application,

The Board doth order and proclaim that that portion of the Township of North Dumfries adjacent to the Town of Galt, which has for its easterly boundary the westerly limit of the Dundas and Waterloo Macadamized Road; for its northerly boundary, the lands of the Waterloo County Golf and Country Club; for its westerly boundary, the east bank of the Grand River; and for its southerly boundary, the northerly limit of the Corporation of the Town of Galt, and which may be more particularly described as follows, being composed of:

First: A part of lot G, said lot G being part of a parcel of land called Pollock Place in the said Township of North Dumfries, more particularly described as follows, that is to say: Commencing at a point in the westerly limit of Hunter Street where the same is intersected by the northern boundary line of the Town of Galt; thence south seventy-six degrees thirty minutes west along said boundary line, eight chains thirty-three links; thence north thirteen degrees thirty minutes west, ninety-eight links to a stake; thence north seventy-six degrees thirty minutes east parallel to said boundary line, five chains seventy-three links to a stake; thence north thirty-seven degrees twenty-two minutes east two chains eighteen links more or less to the southwesterly limit of the Dundas and Waterloo Macadamized Road; thence south fifty-one degrees thirty minutes east along the same, one chain forty links to the aforesaid westerly limit of Hunter Street; thence south fifteen degrees forty minutes east along the same one chain twenty-four links to the place of beginning, being the lands conveyed by George Scott to Stephen Farmer by Deed registered in Book No. 20, for the Township of North Dumfries as number 8286.

Secondly: The lands included in Hannah M. Melross's registered plan numbered 109.

Thirdly: The lands included in A. W. Wright's registered plan numbered 121.

Fourthly: Part of subdivision lot number two east of the Grand River, in the twelfth concession of the Township of North Dumfries, formerly known as a piece of land lying on the easterly side of the Grand River, near the centre of lot number eleven of the twelfth concession of said Township, and which said parcel or tract of land is butted and bounded as follows, that is to say: Commencing on the Division line between the properties, in the year 1864, of Mr. Oliver and the Honourable Walter Dickson, on the westerly line of the Dundas and Waterloo Macadamized Road; thence along the westerly side of said road south fifty degrees thirty minutes east, five chains fifty-eight links more or less to a stake; thence south seventy-six degrees thirty minutes west, six chains forty links more or less to the Mill Pond; thence along the pond north thirty-four degrees fifteen minutes west, three chains sixty-five links more or less to the Division line aforesaid; thence along said line north seventy-six degrees, thirty minutes east, four chains thirty-seven links more

or less to an angle thereof; thence north fifteen degrees forty minutes west, one chain three links more or less to the place of beginning, being the lands conveyed by Margaret Deans to the Goldie & McCulloch Company, Limited, by Deed dated the 7th day of November, 1902, and registered as number 7297.

Fifthly: Parts of Subdivision Lots Two and Three, in the Twelfth Concession of said Township of North Dumfries, sometimes described as parts of Lots Eleven, Twelve, Thirteen and Fourteen in said Concession. Commencing in the south-westerly limit of the Macadamized Road where the same is intersected by the southerly limit of the lands conveyed to the late Andrew Oliver, by indenture, the memorial thereof being registered in the Registry Office for the County of Halton in Book B for Dumfries, number of memorial 324; thence north forty-nine degrees thirty-six minutes west along the said south-westerly limit of the Macadamized Road twenty-one chains and eighty links; thence south forty degrees and twenty-four minutes west at right angles to said Macadamized Road, twelve chains more or less to the Grand River; thence north eighty-six degrees east along the river, five chains and fifty links; thence north sixty degrees east along the river, four chains and twenty-five links; thence south fifty-six degrees east along the river, six chains and seventy links; thence south forty-seven degrees east along the river, seven chains more or less to the said southerly limit of the lots owned by the late Andrew Oliver as aforesaid: thence north seventy-six degrees thirty minutes east along the said four chains and eighty links more or less to the place of beginning, ten acres more or less, being the lands conveyed to Thomas B. Fowler by the Trusts & Guarantee Company, Ltd., administrators of the estate of Andrew Oliver, deceased, by deed dated the first day of April, and registered as Number 7683, be and the same are hereby annexed to the Town of Galt, said annexation to take effect on the day of the date of this Order, upon and subject to the following terms and conditions, namely:—

1. The assessment of the lands and buildings, as they now stand, to be fixed at Thirty per cent. (30%) less than their present Township assessment for a period of five years from the date of the annexation, and said lands and premises to be exempt from the Sewer Debenture debt of the said Town, until properly served with sewers, after which any portion of said lands and premises so served shall be subject to such Debenture debt.

2. That from and after the expiration of five years from the date of the annexation, the lands and premises hereinbefore fifthly described shall be assessed as follows:—The present houses and the lands occupied and enjoyed in connection therewith at the regular rate of assessment, and the balance of the property as farm lands, provided, however, that if any of such farm lands shall be sold as building lots, the portion so sold shall be liable to be assessed at the regular rates of assessment.

(Signed) JAMES LEITCH.
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE No. 1029.

Application by Township of West Wawanosh, under 4 Edw. VII, c. 22, sec. 11, for approval of Interest Increase By-law No. 5 (1911) (Increasing from 4 per cent. to 5 per cent. the rate of interest payable on $2,000 of debentures issued under By-law No. 8 (1904)).

Sept. 1. Application and material filed.

Sept. 5. Application and material considered and approved.

Order.

Upon the application of the above named Corporation and upon reading the notice of application, filed by A. H. Macdonald, Esq., solicitor for the applicants, the certified copy of each of the said By-laws numbered 5, of 1911, and 8, of 1904, the Affidavits of William Bailie, Reeve, and William Stuart McCrostie, Clerk, of the said Township, and the other material, filed.

The Board orders that the said By-law No. 5 of 1911 of the Municipal Corporation of the Township of West Wawanosh, intituled "The Corporation of the Township of West Wawanosh, By-law Number 5, of 1911. To amend By-law Number 8, of 1904," be and the same is hereby approved under and in pursuance of Section 388*b* of "The Consolidated Municipal Act, 1903," (4 Edward VII., Chapter 22, Section 11 (Ontario.)).

(Signed) A. B. INGRAM,
Vice-Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE No. 1030.

Re Forms under the Local Improvement Sections of "The Municipal Act," approved by the Ontario Railway and Municipal Board under 1 George V., c. 58, sec. 54.

Sept. 13. Forms herein having been received, considered and approved, are now promulgated with Board's approval under 1 George V., c. 58, sec. 54.

FORMS.

Under "The Local Improvement Sections of the Municipal Act," (1 Geo. V. c. 58, Ont.)

FORM 4.

PETITION FOR LOCAL IMPROVEMENT.

TO THE COUNCIL OF THE CORPORATION OF THE

..... of .....

THE PETITION OF THE UNDERSIGNED, owners of lands abutting directly on the work hereinafter referred to.

SHEWETH AS FOLLOWS:—

1. That it is expedient to construct a .....Sidewalk.

sidewalk ..... feet wide or such other width as the Council may deem best upon the ..... side of .....

..... Street from .....

to .....

or

Curbing. 1. That it is expedient to construct a curbing upon the .....
..... side of .....street from
..... to .....

or

Sewer. 1. That it is expedient to construct a sewer on .....
..... Street from .....
..... to .....

(*Where the circumstances require, the following may be added*): That such sewer, if deemed advisable, may be constructed of a larger capacity than is required for the purpose of the abutting land in order to afford an outlet for the sewage of lands not abutting directly on the work, subject to the provisions of the Act as to assessing the non-abutting lands for a fair and just proportion of the cost of the work.

or

Paving. 1. That it is expedient to pave ..... Street
with ..... from .....
..... to .....

or

Street, Changing Grade of. 1.—(1) That it is expedient to alter the grade of .....
Street from .....
..... to .....
by (*describe character of work as cutting and filling, or as the case may be*) so that the same may be reduced to a grade not exceeding ....
.....

(*Where the circumstances require the following may be added*):—

(2) That your petitioners submit, subject to the opinion of the Council, that such change in the grade will benefit the Municipality at large, and will specially benefit lands in the vicinity of the work other than those abutting directly thereon, and it would therefore be inequitable to charge all the cost thereof on the lands abutting directly upon the work.

(NOTE.—*These clauses relating to the changing of the grade of a street, with such changes as may be necessary, will apply to the opening, widening, extending, grading, diverting or improving of a street or the construction of a bridge.*)

2. That such work be constructed as a local improvement under the provisions of *The Local Improvement Sections of The Municipal Act.*

YOUR PETITIONERS THEREFORE PRAY:—

That the said (*insert here description of work as* sidewalk, or curbing, etc.) .....may be constructed as a local improvement as aforesaid.

Dated this .....day of.....19.....

Signature of Petitioner.	Street, Number of Lot, or other Description of Land Owned by Petitioner.	Post Office Address of Petitioner.

FORM 5.

CLERK'S CERTIFICATE.

TO THE COUNCIL OF THE CORPORATION OF THE ..... of .....

I, ... Clerk of the ..... of ..... do hereby certify.

That the annexed (*or* within) Petition of ..... and others praying for the construction of ..... upon (or in) ..... Street from ..... to .....as a local improvement lodged with me on the ..... day of ..... 19....is sufficient.

Dated this ..... day of ..... 19.....

.....Clerk.

FORM 6.

DECLARATION OF PUBLICATION.

I, ... of the ..... of ....., in the County of ..... DO SOLEMNLY DECLARE:

1. A true copy of the notice hereto annexed was published in the ..... newspaper published at ..... on the ..... day of .....19.... (*If published more than once insert* "and on the ..... days of .....19..")

AND I make this solemn declaration conscientiously believing it to be true, and knowing that it is of the same force and effect as if made under oath and by virtue of The Canada Evidence Act.

Declared before me at the .....
of .....
this ..... day of ....
..... 19.....

A Commissioner, &c.

FORM 7.

DECLARATION OF SERVICE.

I, ... of the .....

of ....., in the County of .....

....., DO SOLEMNLY DECLARE:

1. I served a true copy of the notice hereto annexed on the owners whose names appear in Column 1 of Schedule 1 on the dates mentioned in Column 2 and in the manner mentioned in Column 3.

2. The owners whose names appear in Schedule 2 were not served for the reasons set opposite their respective names.

AND I make this solemn declaration conscientiously believing it to be true and knowing that it is of the same force and effect as if made under oath and by virtue of The Canada Evidence Act.

Declared before me at the .....
of .....
this ..... day of ....
..... 19.....

A Commissioner, &c.

SCHEDULE 1.

Column 1.	Column 2.	Column 3.
Name of Owner.	Date of Service.	How served.

SCHEDULE 2.

Column 1.	Column 2.
Name of Owner.	Reasons for Not Serving.

FORM 8.

PROCEDURE BY-LAW No. .....

BY-LAW to provide for proceedings to be taken for the construction of a work undertaken as a Local Improvement. See 1 Geo. V., c. 58, s. 32.

WHEREAS it is expedient to provide for the making of the reports, statements, estimates and special assessment roll required in the case of a work undertaken as a Local Improvement under *The Local Improvement Sections of The Municipal Act.*

THEREFORE the Municipal Council of the Corporation of the ..... of ..... enacts as follows:—

1. In this by-law "the Act" shall mean *The Local Improvement Sections of The Municipal Act.*

2. The interpretation section of the Act shall apply to this by-law.

3. A duly qualified engineer, or some officer of this Corporation or some other person, competent to perform the duties of an engineer under the Act, hereinafter called the "Engineer," shall be appointed to perform all services which under the Act may be performed by an Engineer, and he shall make all reports, statements and estimates and the special assessment roll required in the case of a work undertaken.

4. The Clerk shall give to the Engineer such information and assistance as may reasonably be required of him.

5. Upon the Council acquiring power to undertake a work, the Engineer shall forthwith make the report, statements and estimates respecting such work required by the Act and deliver the same to the Clerk, who shall submit them to the Council at the next meeting thereof.

6. Upon the completion of the work the Engineer shall make a special assessment roll for the cost of the work, and deliver the same to the Clerk. He shall also make a statement showing under appropriate heads the actual cost of the work. The Clerk, Treasurer and Assessment Commissioner shall assist the Engineer in making such statement and when it is completed the Treasurer, or in his absence the Clerk, shall verify the same by his certificate, and the Statement shall be delivered to the Chairman of the Court of Revision.

7. Upon receiving the Special Assessment Roll, the Clerk shall notify the Chairman of the Court of Revision, who shall, without delay, call sittings of the Court for the hearing of complaints against the proposed special assessment, and shall notify the Clerk of the time and place at which such sittings will be held.

8. The Clerk shall prepare and serve or cause to be served and published all notices required by the Act to be served or published, and shall prepare the affidavits and other evidence of the service and publication thereof, and keep the same on file in his office, and he shall also prepare all such other certificates, papers and documents as may be required and shall see that all the requirements of the Act respecting the proceedings for or in connection with the construction of the work are complied with.

Passed this ..... day of .....1911.

Mayor (or Reeve). .....

Clerk ..... Seal of Corporation.

FORM 9.

BY-LAW No. .....

See 1 Geo. V., c. 58, s. 23.

BY-LAW to provide for the payment by the Corporation of part of the cost of certain works constructed as local improvements otherwise chargeable upon the lands abutting directly upon the works.

WHEREAS it is expedient that part of the cost of every work of any of the classes or descriptions hereinafter mentioned, constructed as a local improvement, which otherwise would be chargeable upon lands abutting directly on the work shall be paid by the Corporation.

AND WHEREAS there is not in force in this municipality any by-law passed with the assent of the Municipal electors providing that all works of any of the classes or descriptions hereinafter mentioned shall be undertaken as local improvements and not otherwise.

THEREFORE the Municipal Council of the Corporation of the ..... of .....enacts as follows:—

1. The interpretation section of *The Local Improvement Sections of The Municipal Act* shall apply to this by-law.

2. The Corporation shall pay .....per cent. of that part of the cost of every granolithic, stone, cement, asphalt or brick sidewalk; *if pavements and curbings are to be provided for add* "and of every pavement and curbing constructed as a local improvement which otherwise would be chargeable upon the lands abutting directly on the work."

3. This by-law shall apply to such works only as are undertaken after the passing hereof.

Passed by a vote of three-fourths of all the members of the Council this ..... day of .....19....

Mayor (or Reeve). .....
Clerk ..... Seal of Corporation.

FORM 10.

CONSTRUCTION BY-LAWS NO. .....

BY-LAW to authorize the construction of .... on .....Street from ..... to ..... as a Local Improvement under the provisions of *The Local Improvement Sections of The Municipal Act.*

WHEREAS ..... and others have petitioned the Council to construct, as a local improvement, the work hereinafter described, and the Clerk has certified that the petition is sufficient and it is expedient to grant the prayer of the petition in manner hereinafter provided.

If on Petition insert this recital.

Or

WHEREAS notice of the intention of the Council to undertake the construction as a local improvement of the work hereinafter described, has been duly given by publication of the notice and by service of it upon the owners of the lots liable to be specially assessed, and the publication and service of such notice has been proved by a statutory declaration filed with the Clerk, and no petition against the work signed by a majority of the owners, representing at least one-half the value of the lots which are liable to be specially assessed, has been presented.

If on the Initiative insert this recital.

Or

WHEREAS it is expedient that the construction of the work hereinafter described shall be undertaken as a local improvement and notice of the intention of the Council to undertake such work has been duly published.

If on two-thirds vote of council insert this recital.

Or

WHEREAS a sewer has been constructed upon ....Street from ..... to ..... and it is expedient to construct as a local improvement private drain connections from the sewer to the street line on the .....side of the street (*if connections are to be constructed on both sides insert* "on both sides of the street") connecting the sewer with the lots abutting thereon specified in Schedule I, and notice of the intention of the Coun-

Where private drain connections are to be constructed as a separate work, insert this recital.

cil to undertake the construction of such private drain connections has been duly given.

Or

If work is to be constructed on sanitary grounds, insert this recital.

WHEREAS the Provincial Board of Health (*or*) the Local Board of Health of this Municipality (*as the case may be*) has recommended the construction (*or* the enlargement *or* the extension) of a (the) sewer on ..... Street from ..... to .... and it is therefore necessary and desirable in the public interest on sanitary grounds to construct (*or* enlarge *or* extend) such sewer according to such recommendation as a local improvement.

THEREFORE the Municipal Council of the Corporation of the ..... of .....enacts as follows:

General.

1. That a .....be constructed on ..... Street from ..... to ..... as a local improvement under the provisions of *The Local Improvement Sections of The Municipal Act.*

Or

Pavement.

1. That a ..... pavement ..... feet wide, be constructed on ..... Street, from ..... to .....as a local improvement under the provisions of *The Local Improvement Sections of The Municipal Act.*

See 1 Geo. V., c 58, s. 4.

Note.—(If the Council determines to construct as part of the work a water main, a gas main, private drain connections, and alterations or renewals of water service pipes and stop cocks and of gas connections, or any or either of such works, set out the additional work to be undertaken, and set out in a schedule the lots to be specially assessed for such additional work.)

Or

Private drain connections as a separate work.

1. That private drain connections be constructed as a local improvement, under the provisions of *The Local Improvement Sections of The Municipal Act* applicable to such a work, from the sewer on .... Street from ..... to .....to the Street line on both sides (*or if on one side only insert* "on the.....side") of the Street, connecting the sewer with the lots abutting on that part of the Street specified in Schedule 1.

Or

Sewer.

1. That a sewer (*describe kind of sewer and its dimensions*) be constructed as a local improvement, under the provisions of *The Local Improvement Sections of The Municipal Act,* on.....

Street from..... to .....
(*if the Council so determines add*) with private drain connections to the line of the street connecting such sewer with the lots specified in Schedule 1.

Or

1.—(1) That it is determined and declared, this by-law being passed by a vote of two-thirds of all the members of the Council, that it is desirable that the construction of a ..... Where vote of two-thirds of all the members of the council required.

..... on ..... Street from

..... to .....
should be undertaken as a local improvement under the provisions of *The Local Improvement Sections of the Municipal Act.*

(2) That as above determined and declared a .....

..... be constructed on .....

Street from ..... to

..... as a local improvement under the provisions of *The Local Improvement Sections of The Municipal Act.*

2. The Engineer of the Corporation (*or* ..... General. *insert name of person appointed as Engineer of the work*). do forthwith make such plans, profiles and specifications and furnish such information as may be necessary for the making of a contract for the execution of the work.

3. The work shall be carried on and executed under the superintendence and according to the directions and orders of such Engineer.

4. The Mayor (*or* Reeve) and Clerk are authorized to cause a contract for the construction of the work to be made and entered into with some person or persons, firm or Corporation, subject to the approval of this Council to be declared by resolution.

5. The Treasurer may (subject to the approval of the Council) agree with any bank or person for temporary advances of money to meet the cost of the work pending the completion of it.

6. The special assessment shall be paid by .....

.....annual instalments (this period must be within the lifetime of the work).

7. The debentures to be issued for the loan to be effected to pay for the cost of the work when completed shall bear interest at ..... per cent. per annum and be made payable within .....

.....years on the instalment plan (*or if on the sinking fund plan insert* "on the sinking fund plan"), and in settling the sum to be raised annually to pay the debt the rate of interest on investments shall not be estimated at more than four per cent. per annum.

8. Any person whose lot is specially assessed may commute for a payment in cash the special rates imposed thereon, by paying the portion of the cost of construction assessed upon such lot, without the interest, forthwith after the Special Assessment Roll has been certified by the Clerk, and at any time thereafter by the payment of such sum as when invested at four per cent. per annum will provide an annuity sufficient to pay the special rates for the unexpired portion of the term as they fall due.

Passed this .....

day of ..... 19....

Mayor (*or Reeve*). .....

Clerk ..... Seal of Corporation.

FORM 11.

SPECIAL ASSESSMENT ROLL

For the Cost of a.....on the.....side of.....
(description of work.)

Street from..... to.....

constructed as a Local Improvement.

Name of Owner.	Street.	Side of Street.	Lot assessed.	Number of feet to be assessed.	Cost per foot frontage of work.	Cost per foot frontage of private drain connections.	Cost per foot frontage of water mains.	Cost per foot frontage of alterations, or renewals of water service pipes and stopcocks.	Cost per foot frontage of gas mains.	Cost per foot frontage of alterations or renewals of gas connections.	Total cost per foot frontage with which each lot is assessed.	Number of instalments by which assessment is payable.
Lots abutting on works.												
Exempt Lots, the Assessment upon which is payable by Corporation.												
Lots not abutting upon the work.												

I.....Clerk of the.....
of.....do hereby certify that the foregoing Special Assessment Roll is correct.

Dated.....day of.....19.....

Clerk.

(NOTE.—*For convenience the following may be added after the signature of the clerk.*)

WORK UNDERTAKEN:—

CONSTRUCTION of a (*describe work*) on the .....
..... side of ..... Street from
..... to .....

Total cost of the work .....$

The Corporation's portion of the cost is.....$

The Owner's portion of the cost of the work is....$

The part of the Owners' portion of the cost specially assessed upon the lots abutting directly on the work is .....$

The part of the Owners' portion of the cost specially assessed upon land not abutting directly on the work is .....$

The special assessment to be paid in....instalments.

The debentures are to bear interest at .....per cent. per annum.

FORM 12.

DEBENTURE BY-LAW. SINKING FUND PLAN.

BY-LAW No. .....

By-law to provide for borrowing $.....
upon debentures to pay for the construction of a .....
on ..... Street from .....
..... to .....

WHEREAS pursuant to construction By-law No. .....
passed on the ..... to .....
19...., a ..... has been constructed
on ..... Street from .....
..... to .....
as a local improvement under the provisions of *The Local Improvement Sections of The Municipal Act.*

AND WHEREAS the total cost of the work is $.....
of which $..... is the Corporation's portion of the cost, and $..... is the owner's portion of the cost, for which a Special Assessment Roll has been duly made and certified.

AND WHEREAS the estimated lifetime of the work is ..... years.

AND WHEREAS it is necessary to borrow the said sum of $..... on the credit of the Corporation and to issue debentures therefor payable within ..... years from the time of the issue thereof, and bearing interest at the rate of ..... per cent. per annum, which is the amount of the debt intended to be created by this by-law.

AND WHEREAS it will be necessary to raise annually $..... ..... for the payment of the debt, and $..... for the payment of the interest thereon, making in all $..... to be raised annually for the payment of the debt and interest, of which $..... is required to pay the Corporation's portion of the cost and the interest thereon, and $..... .....is required to pay the owner's portion of the cost and the interest thereon.

AND WHEREAS the amount of the whole rateable property of the municipality according to the last revised assessment roll is $.....

AND WHEREAS the amount of the existing debenture debt of the Corporation (exclusive of local improvement debts, secured by special rates or assessments) is $ ..... and no part of the principal or interest is in arrear.

THEREFORE the Municipal Council of the Corporation of the ..... of ..... enacts as follows:—

1. That for the purpose aforesaid there shall be borrowed on the credit of the Corporation at large the sum of .....dollars ($.....) and debentures shall be issued therefor in sums of not less than $100 each, which shall have coupons attached thereto for the payment of the interest.

2. The debentures shall all bear the same date and shall be issued within two years after the day on which this By-law is passed and may bear any date within such two years and shall be payable within ..... years after the time when the same are issued.

3. The debentures shall bear interest at the rate of ....per cent. per annum payable ..... yearly, and as to both principal and interest may be expressed in Canadian Currency or Sterling money of Great Britain at the rate of one pound sterling for each four dollars and eighty-six and two-third cents, and may be payable at any place or places in Canada or Great Britain.

4. The (Mayor *or* Reeve) of the Corporation shall sign and issue the debentures and interest coupons, and the same shall also be signed by the Treasurer of the Corporation, and the debentures shall be sealed with the seal of the Corporation.

☞ *In the case of a city it is unnecessary that the coupons be signed by the Mayor.*

5. During ..... years, the currency of the debentures, $..... shall be raised annually to form a sinking fund for the payment of the debt, and $..... shall be raised annually for the payment of the interest thereon, making in all $..... to be raised annually or the payment of the debt and interest, as follows:—

The sum of $..... shall be raised annually for the payment of the Corporation's portion of the cost and the interest thereon, and shall be levied and raised annually by a special rate sufficient therefor over and above all other rates on all the rateable property in the municipality at the same time and in the same manner as other rates.

☞ *If the rate per foot frontage is the same on all the lots, insert the following clause:—*

For the payment of the owner's portion of the cost and the interest thereon, the special assessment set forth in the said Special Assessment Roll is hereby imposed upon the lands liable therefor as therein set forth: which said special assessment with a sum sufficient to cover interest thereon at the rate aforesaid shall be payable in ..... equal annual instalments of $ ..... each, and for that purpose an equal annual special rate of ..... cents per foot frontage is hereby imposed upon each lot entered in the said special Assessment Roll, according to the assessed frontage thereof, over and above all other rates and taxes, which said special rate shall be collected annually by the collector of taxes for the Corporation at the same time and in the same manner as other rates.

☞ *If the rate per foot frontage is not the same on all the lots, insert the following clause instead of the next preceding one:—*

For the payment of the owners' portion of the cost and the interest thereon, the special assessment set forth in the said Special Assessment Roll is hereby imposed upon the lands liable therefor as therein set forth; which said special assessment with a sum sufficient to cover interest thereon at the rate aforesaid shall be payable in ..... equal annual instalments of $..... each, and for that purpose the special annual rates per foot frontage set forth in Schedule 1 hereto attached are hereby imposed upon the lots entered in the special Assessment roll, according to the assessed frontage thereof, over and above all other rates and taxes, and the said special rates shall be collected annually by the collector of taxes for

the Corporation at the same time and in the same manner as other rates.

All money arising from the said special rates or from the commutation thereof not immediately required for the payment of interest shall be invested as required by law.

7. The debentures may contain any clause providing for the registration thereof authorized by any statute relating to Municipal debentures in force at the time of the issue thereof.

8. The amount of the loan authorized by this by-law may be consolidated with the amount of any loans authorized by other local improvement by-laws, by including the same with such other loans in a consolidating by-law authorizing the borrowing of the aggregate thereof as one loan and the issue of debentures for such loan in one consecutive issue pursuant to the provisions of the statute in that behalf.

9. This by-law shall take effect on the day of the final passing thereof.

Passed this .....day of ..... . 19....

Mayor (or Reeve). .....

Clerk ..... Seal of Corporation.

FORM 13.

DEBENTURE BY-LAW. INSTALMENT PLAN.

BY-LAW No.....

By-law to provide for borrowing $..... upon debentures to pay for the construction of a ..... on the ..... side of ..... Street ..... from ..... to .....

WHEREAS, pursuant to construction By-law No. ..... passed on the ..... day of ....., 19....., a .... has been constructed on ..... Street from ..... to ..... as a local improvement under the provisions of *The Local Improvement Sections of The Municipal Act.*

AND WHEREAS the total cost of the work is $..... ..... of which $..... is The Corporation's portion of the cost, and $..... is the owner's portion of the cost, for which a Special Assessment Roll has been duly made and certified.

AND WHEREAS the estimated lifetime of the work is .....
.....years.

AND WHEREAS it is necessary to borrow the said sum of $..... on the credit of the Corporation and to issue debentures therefore bearing interest at the rate of ..... per cent. per annum, which is the amount of the debt intended to be created by this by-law.

AND WHEREAS it is expedient to make the principal of the said debt repayable in yearly sums during the period of .....
years, of such amounts respectively that the aggregate amount payable for principal and interest in any year shall be equal as nearly as may be to the amount so payable for principal and interest in each of the other years.

AND WHEREAS it will be necessary to raise annually the sum of $.....during the period of ..... years to pay the said yearly sums of principal and interest as they become due, of which $..... is required to pay the Corporation's portion of the cost and interest thereon, and $..... is required to pay the owners' portion of the cost and the interest thereon.

AND WHEREAS the amount of the whole rateable property of the Municipality, according to the last revised assessment roll, is $.....

AND WHEREAS the amount of the existing debenture debt of the Corporation (exclusive of local improvement debts, secured by special rates or assessments) is $ ..... and no part of the principal or interest is in arrear.

THEREFORE, the Municipal Council of the Corporation of the ..... of ..... enacts as follows:—

1. That for the purpose aforesaid there shall be borrowed on the credit of the Corporation at large the sum of ..... dollars ($.....), and debentures shall be issued therefor in sums of not less than $100 each, bearing interest at the rate of .....
per cent. per annum, and having coupons attached thereto for the payment of the interest.

2. The debentures shall all bear the same date and shall be issued within two years after the day on which this By-law is passed, and may bear any date within such two years, and shall be payable in .....annual instalments during the ..... years next after the time when the same are issued, and the respective amounts of principal and interest payable in each of such years shall be as follows:—

No.	Principal.	Interest.	Total.
	$	$	$
1			
2			
3			

3. The debentures as to both principal and interest may be expressed in Canadian currency or Sterling money of Great Britain, at the rate of one pound sterling for each four dollars and eighty-six and two-thirds cents, and may be payable at any place or places in Canada or Great Britain.

4. The (Mayor *or* Reeve) of the Corporation shall sign and issue the debentures and interest coupons, and the same shall also be signed by the Treasurer of the Corporation, and the debentures shall be sealed with the seal of the Corporation.

☞ *In the case of a city it is unnecessary that the coupons be signed by the Mayor.*

5. During ..... years, the currency of the debentures, the sum of $..... shall be raised annually for the payment of the debt and interest, as follows:

The sum of $..... shall be raised annually for the payment of the Corporation's portion of the cost and the interest thereon, and shall be levied and raised annually by a special rate sufficient therefor, over and above all other rates, on all the rateable property in the municipality, at the same time and in the same manner as other rates.

☞*If the rate per foot frontage is the same on all the lots, insert the following clause*:

For the payment of the owners' portion of the cost and the interest thereon, the special assessment set forth in the said special Assessment Roll is hereby imposed upon the lands liable therefor as therein set forth; which said special assessment, with a sum sufficient to cover interest thereon at the rate aforesaid shall be payable in ..... equal annual instalments of $ .....each, and for that purpose an equal annual special rate of ..... cents per foot frontage is hereby imposed upon each lot entered in the said special Assessment Roll, according to the assessed frontage thereof, over and above all other rates and taxes, which said special rate shall be collected annually by the collector of taxes for the Corporation, at the same time and in the same manner as other rates.

☞ *If the rate per foot frontage is not the same on all the lots, insert the following clause instead of the next preceding one:—*

For the payment of the owners' portion of the cost and the interest thereon, the special assessment set forth in the said special Assessment Roll is hereby imposed upon the lands liable therefor as therein set forth; which said special assessment, with a sum sufficient to cover interest thereon at the rate aforesaid, shall be payable in ..... equal annual instalments of $..... each, and for that purpose the special annual rates per foot frontage set forth in Schedule 1 hereto attached, are hereby imposed upon the lots entered in the said special Assessment Roll, according to the assessed frontage thereof, over and above all other rates and taxes, and the said special rates shall be collected annually by the collector of taxes for the Corporation at the same time and in the same manner as other rates.

6. The debentures may contain any clause providing for the registration thereof, authorized by any statute relating to Municipal debentures in force at the time of the issue thereof.

7. The amount of the loan authorized by this by-law may be consolidated with the amount of any loans authorized by other local improvement by-laws, by including the same with such other loans in a consolidating by-law authorizing the borrowing of the aggregate thereof as one loan, and the issue of debentures for such loan in one consecutive issue, pursuant to the provisions of the statute in that behalf.

8. This by-law shall take effect on the day of the final passing thereof.

Passed this ..... day of ..... 19.....

Mayor (or Reeve). .....

Clerk .....

FORM 14.

SCHEDULE I.

Attached to Debenture By-law No.

This form is to be used in connection with both forms of debenture by-laws if the rate per foot frontage is not the same on all the lots.

Name of Owner.	Street.	Side of street.	Lot assessed	Number of feet assessed.	Total cost per foot frontage with which each lot is assessed.	Amount to be paid annually to pay debt and interest.	Annual rate per foot frontage.
Lots abutting on work.							
Exempt Lots, the Assessment upon which is payable by the Corporation.							
Lots not abutting upon the work.							

FORM 15.

CONSOLIDATING BY-LAW. SINKING FUND PLAN.

BY-LAW NO. .....

By-law to consolidate the sums authorized to be borrowed by certain local improvement by-laws into one sum of $....., and to borrow the same by the issue of debentures therefor.

WHEREAS the Municipal Council of the Corporation of the ..... of .....has passed the by-laws hereinafter mentioned providing for borrowing money by the issue of debentures to pay for the construction of certain works, as local improvements, therein referred to, namely:—

No. of By-Law.	When passed.	Nature of Work.	Situation of Work.	Amount of Loan.

AND WHEREAS the aggregate of the sums authorized by the said by-laws to be borrowed is the sum of ..... dollars ($.....), and it is desirable to consolidate the said sums into one sum of $..... and to issue debentures therefor in one consecutive issue, which is the amount of the debt intended to be created by this by-law.

AND WHEREAS all of the said by-laws provide that the debentures to be issued thereunder shall be payable within ..... years after the time when the same are issued and shall bear interest at the rate of ..... per cent. per annum, payable ..... yearly.

AND WHEREAS the amount of the whole rateable property of the Municipality according to the last revised assessment roll is $.....

AND WHEREAS the amount of the existing debenture debt of the Municipality, exclusive of local improvement debts secured by special rates or assessments, is $....., and no part of the principal or interest is in arrear.

THEREFORE the Municipal Council of the Corporation of the .....of.....enacts as follows:—

1. The sums authorized by the said by-laws to be borrowed are hereby consolidated into one sum of $.....

2. For the purpose aforesaid there shall be borrowed on the credit of the Corporation at large the sum of ..... dollars ($.....), and debentures shall be issued therefor in one consecutive issue in sums of not less than $100 each, which shall have coupons attached thereto for the payment of the interest.

3. The debentures shall all bear the same date and shall be issued within two years after the day on which the earliest of the said by-laws was passed, and may bear any date within such two years and shall be payable within ..... years after the time when the same are issued.

4. The debentures shall bear interest at the rate of ..... per cent. per annum, payable.....yearly, and as to both principal and interest may be expressed in Canadian Currency or Sterling money of Great Britain at the rate of one pound Sterling for each four dollars and eighty-six and two-thirds cents, and may be payable at any place or places in Canada or Great Britain.

5. The Mayor (*or* Reeve) of the Corporation shall sign and issue the debentures and interest coupons and the same shall also be signed by the Treasurer of the Corporation, and the debentures shall be sealed with the seal of the Corporation.

☞ *In the case of a city it is unnecessary that the coupons be signed by the Mayor.*

6. The money to be borrowed as aforesaid shall be apportioned, crediting each work with the amount of the loan provided for by the by-law relating thereto as above set forth.

7. This by-law shall come into force and take effect on the day of the final passing thereof.

Passed this ..... day of 19

Mayor (or Reeve). .....

Clerk. ..... Seal of Corporation.

FORM 16.

CONSOLIDATING BY-LAW. INSTALMENT PLAN.

BY-LAW NO. .....

By-law to consolidate the sums authorized to be borrowed by certain local improvement by-laws into one sum of $....., and to borrow the same by the issue of debentures therefor.

WHEREAS the Municipal Council of the Corporation of the .... of ..... has passed the by-laws hereinafter mentioned providing for borrowing money by the issue of debentures to pay for the construction of certain works, as local improvements, therein referred to, namely:—

No. of By-Law.	When passed.	Nature of Work.	Situation of Work.	Amount of Loan.

AND WHEREAS the aggregate of the sums authorized by the said by-laws to be borrowed is the sum of ..... dollars ($.....), and it is desirable to consolidate the said sums into one sum of $..... and to issue debentures therefor in one consecutive issue, which is the amount of the debt intended to be created by this by-law.

AND WHEREAS all of the said by-laws provide that the debentures to be issued thereunder shall bear interest at the rate of ..... per cent. per annum, and that the principal of the debt shall be repayable in yearly sums during the period of ..... years, of such amounts respectively that the aggregate amount payable for principal and interest in any year shall be equal as nearly as may be to the amount so payable in each of the other years.

AND WHEREAS the amount of the whole rateable property of the Municipality according to the last revised assessment roll is $.....

AND WHEREAS the amount of the existing debenture debt of the Municipality, exclusive of local improvement debts secured by special rates or assessments, is $....., and no part of the principal or interest is in arrear.

THEREFORE the Municipal Council of the Corporation of the ..... of ..... enacts a follows:—

1. The sums authorized by the said by-laws to be borrowed are hereby consolidated into one sum of $.....

2. For the purpose aforesaid there shall be borrowed on the credit of the Corporation at large the sum of ..... dollars ($.....). and debentures shall be issued therefor in one consecutive issue in sums of not less than $100 each, bearing interest at the rate of ..... per cent. per annum, and having coupons attached thereto for the payment of the interest.

3. The debentures shall all bear the same date and shall be issued within two years after the day on which the earliest of the said by-laws was passed, and may bear any date within such two years, and shall be payable in ..... annual instalments during the ..... years next after the time when the same are issued, and the respective amounts of principal and interest payable in each of such years shall be as follows:—

No.	Principal.	Interest.	Total.
1			
2			
3			

4. The debentures. as to both principal and interest, may be expressed in Canadian currency or Sterling money of Great Britain, at the rate of one pound sterling for each four dollars and eighty-six and two-third cents, and may be payable at any place or places in Canada or Great Britain.

5. The Mayor (or Reeve) of the Corporation shall sign and issue the debentures and interest coupons and the same shall also be signed by the Treasurer of the Corporation, and the debentures shall be sealed with the seal of the Corporation.

☞ *In the case of a city it is unnecessary that the coupons be signed by the Mayor.*

6. The money to be borrowed as aforesaid shall be apportioned, crediting each work with the amount of the loan provided for by the by-law relating thereto as above set forth.

7. This by-law shall come into force and take effect on the day of the final passing thereof.

Passed this ..... day of ..... 1911.

Mayor (or Reeve). .....

Clerk .....

Seal of Corporation.

FORM 17.

DEBENTURE—INSTALMENT PLAN

(*Without Coupons*).

No..... CANADA $.....

PROVINCE OF ONTARIO

..... *of* .....

DEBENTURE

The Corporation of the.....of.....hereby promises to pay to the Bearer the sum of..... Dollars and ..... Cents of lawful money of Canada, at the Office of the..... in the ..... on the..... day of ..... 19 ..... .

This debenture, or any interest therein, shall not, after a certificate of ownership has been endorsed thereon by the Treasurer of this Municipal Corporation, be transferable, except by entry, by the Treasurer or his Deputy, in the Debenture Registry Book of the said Corporation at the ..... of .....

Dated at ..... *this .....day of ..... one thousand nine hundred and .....*

In Testimony Whereof *and under the authority of By-law No. of the Municipal Council of the Corporation of the ..... passed on the ..... day of..... 19 .....this debenture is sealed with the Seal of the Corporation and signed by the..... and Treasurer thereof.*

Seal of Corporation

..... TREASURER

..... MAYOR (*or* REEVE)

[171]

FORM 18.

DEBENTURE—INSTALMENT or SINKING FUND PLAN.

No.....

CANADA

PROVINCE OF ONTARIO

..... of .....

$.....

DEBENTURE

The Corporation of the ..... of ..... hereby promises to pay to the Bearer the sum of ..... Dollars and ..... Cents of lawful money of Canada, at the Office of the ..... in the ..... on the ..... day of ..... 19 ..... and to pay interest thereon in the meantime at the rate of .....per centum per annum, ...yearly on the ..... day of ..... and of ..... in each year to the Bearer of the annexed Coupons upon presentation thereof at the said Office, as they become due.

This debenture, or any interest therein, shall not, after a certificate of ownership has been endorsed thereon by the Treasurer of this Municipal Corporation, be transferable, except by entry, by the Treasurer or his Deputy, in the Debenture Registry Book of the said Corporation at the ..... of .....

Dated at ..... *this ..... day of ..... one thousand nine hundred and .....*

In Testimony Whereof *and under the authority of By-law No. ..... of the Municipal Council of the Corporation of the ..... duly passed on the ..... day of ..... 19 ..... this debenture is sealed with the Seal of the said Corporation and signed by the .....and Treasurer thereof.*

Seal of the Corporation

.....
TREASURER

.....
(MAYOR or REEVE)

[180]

Debenture No.....

By-Law No..... Coupon No.....

The Corporation of the.....will pay to the Bearer at the Office of the.....Ontario, on the .....day of.....19...., the sum of $..... interest due on that day on the above debenture.

$.....

.....Mayor.

.....Treasurer.

The Board approves the above forms.
Dated this 13th day of September, 1911.

Sgd. JAMES LEITCH.
Chairman Ontario Railway and Municipal Board.

PROCEDURE FILE 1031.

Application by the Town of Berlin, under 6 Edw. VII., c. 34, sec. 21, for approval of Gas and Electric Light Extension By-law 1114. ($20,000.)

Sept. 7. Application and material filed.

Sept. 12. Application and material considered—Letter for further material and amending By-law.

Sept. 22. Further material and amending By-law filed. Order.

Upon the application of the above named Corporation, and upon reading the Notice of Application filed by Messrs. Millar and Sims, Solicitors for the Applicant, the Affidavits of Albert Litorius Breithaupt, Chairman of the Berlin Light Commissioners, and of William Henry Schmalz, Mayor of the said Town, the certified copy of the said By-law No. 1114, and of the said amending By-law No. 1125, and the other material filed.

The Board orders that the said By-law No. 1114 of the Municipal Corporation of the Town of Berlin, intituled "Town of Berlin By-law No. 1114. A By-law to provide for the issue of a debenture or debentures, to the amount of $20,000.00 for additions and improvements to the Berlin Gas and Electric Light Works." (as amended by the said Corporation's By-law No. 1125), be and the same is hereby approved.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1032.

Application by W. J. Moses and Son, under 10 Edw. VII., c. 84, sec. 12, for connection with and service from The Metcalfe Rural Telephone Company.

Sept. 8. Petition having been filed—Letter to Metcalfe Rural Telephone Company therein.

Dec. 5. Letter from Company advising that matter of complaint rectified. (See P.F. 969).

PROCEDURE FILE 1033.

Application by the Town of Dunnville, under 8 Edw. VII., c. 51, for validation of By-law 5, A.D., 1911, and the debentures thereunder, ($10,000 for High School purposes).

Sept. 11. Application and material filed.

Sept. 12. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the affidavits of Robert Bennett, Mayor, and John Wilson Holmes, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 5, intituled "By-law No. 5, A.D., 1911. By-law to provide for borrowing the sum of $10,000 for High School purposes in the Town of Dunnville," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Dunnville, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1034. (I.C. $265,500.00).

Application by the Town of North Toronto, under 8 Edw. VII., c. 51, for validation of By-law 1230 and debentures. ($265,500 for sewerage purposes).

Sept. 12. Application and material filed.

Sept. 13. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by T. A. Gibson, Esquire, Solicitor for the Applicant, the affidavit of Alonzo Johnson Brown, Mayor, the declaration of William C. Norman, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 1230, intituled "No. 1230. A By-law to provide for the construction of a system of sewers and sewage disposal plant for the Town of North Toronto; and to provide for the issue of debentures to the amount of $265,500.00 to meet the cost thereof and incidental thereto," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of North Toronto, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1035. (I.C. $12,000.)

Application by the Town of Dundas, under 8 Edw. VII., c. 51, for validation of By-law 674, and debentures ($12,000 for Hydro-Electric Power Distribution Plant).

Sept. 14. Application and material filed.

Sept. 19. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Malone, Malone and Long, Solicitors for the Applicant, the affidavits of Richard T. Wilson, Mayor, and John S. Fry, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 674, intituled "By-law No. 674. To provide for borrowing $12,000.00 to pay for cost of a plant to distribute Hydro-Electric Power and to authorize the issue of debentures for the purpose of raising the said sum," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Dundas, and declaring the same valid and binding, and that its vadidity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) James Leitch,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

Procedure File 1036.

Application by the Bell Telephone Company, under 10 Edw. VII., Chap. 84, for approval of agreement with the Town of Chesley.

Sept. 15. Agreement filed.

Sept. 25. Order.

Procedure File 1037.

Application by the Blyth Municipal Telephone System, under 10 Edw. VII., Chap. 84, for approval of agreement with the Colborne Telephone System.

Sept. 15. Agreement filed.

Sept. 25. Order.

Procedure File 1038. (I.C. $48,000.00.)

Application by the Town of Steelton, under 8 Edw. VII., Chap. 51, for validation of By-law No. 155, and the debentures thereunder, ($48,000 for construction of an Electric Light and Power Plant).

Sept. 20. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the certified copy of the said By-law, the Statutory Declaration of Joseph Robinson, Clerk of the said Town, and the other material filed.

The Board orders that the said By-law No. 155 intituled, "A By-law to provide for the construction of an Electric Lighting and Power Plant for the Town of Steelton and to authorize the issue of debentures to the amount of $48,000.00 therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Steelton and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1039. (I.C. $6,000.00.)

Application by the Town of Steelton, under 8 Edw. VII., Chap. 51, for validation of By-law No. 156, and the debentures thereunder. ($6,000 for installation of Fire Alarm System and Fire Hose Tower).

Sept. 20. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the certified copy of the said By-law, the Statutory Declaration of Joseph Robinson, Clerk of the said Town, and the other material filed.

The Board orders that the said By-law No. 156 entituled, "A By-law to provide for the construction and installation of a Fire Alarm System, and a Fire Hose Tower for the Town of Steelton, and to authorize the issue of debentures to the amount of $6,000.00 therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Steelton and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1040.

Application by the Town of Milton, under 8 Edw. VII., c. 51, for validation of By-law 447, and debentures ($2,000 for waterworks improvements).

Sept. 21. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by W. J. Dick, Esquire, Solicitor for the Applicant, the Affi-

davits of Edwin F. Earl, Acting Mayor, and George A. Hemstreet, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 447, intituled "By-law to authorize the Corporation of the Town of Milton to provde for the improvement and extension of the present system of waterworks of the Town of Milton, and for the issuing of debentures to the amount of $12,000 therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Milton, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1041.

Application by the Township of O'Connor, under 8 Edw. VII., c. 51, for validation of By-law 54, and debentures ($600 for school house).

Sept. 21. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the affidavit of Christopher J. Evans, Clerk of the said Township, the copy of the said By-law, and the other material filed.

The Board orders that the said By-law No. 54, intituled "Municipality of O'Connor By-law No. 54. April 15th. 1911. The Corporation of the Municipality of O'Connor. By-law to provide for the issue of debentures for the sum of ($600.00) Six hundred dollars, for the erection of a school house in School Section No. 1 in this Township," be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Township of O'Connor, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1042.

Application by the Town of Ingersoll, under 6 Edw. VII., Chap. 34, sec. 21, for approval of By-law No. 727 ($25.000 for Hydro-Electric Distribution Plant).

Sept. 26. Application and material filed.

Sept. 28. Application and material considered and approved.

Order.

Upon the application of the above named Corporation, and upon reading the Notice of Application, the Statutory Declarations of William R. Reynolds, Electrical Engineer, and George Sutherland, Chairman of the Board of Power and Light Commissioners, and Robert J. Robertson, Treasurer of the Town of Ingersoll, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 727 of the Municipal Corporation of the Town of Ingersoll, intituled "By-law No. 727. To provide for the issue of debentures to the amount of Twenty-five Thousand Dollars, for the purpose of making further alterations and extensions to the Electric Light Plant, required for the purpose of receiving and distributing Hydro-Electric Power. Light and Heat within the Corporation of the Town of Ingersoll, be and the same is hereby approved."

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1043.

Application by the Town of Haileybury, under 8 Edw. VII., Chap. 51, for validation of By-law No. 290, and debentures. ($15,000.00 for waterworks extensions.)

Sept. 26. Application and material filed.

Sept. 28. Application and material considered and approved. Order to issue after 30 days from the final passing of the By-law.

Oct. 10. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Affidavits of Thomas Jarrett, Acting Mayor, and Theodore Henry Connor, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 290, intituled "The Municipality of the Town of Haileybury. By-law No. 290. A By-law to provide for the improvement, extension, alteration and repair of the Waterworks System in and for the Town of Haileybury, and to authorize the issue of debentures of the said Town to the amount of $15,000.00 for the purpose of raising the sum required therefor." be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act. 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Haileybury, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1044.

Application by the Town of Haileybury, under 8 Edw. VII., Chap. 51, for validation of By-law No. 291, and debentures, ($10,970.83 for sewage purposes).

Sept. 26. Application and material filed.

Sept. 28. Application and material considered and approved Order to issue after 30 days from final passing of the By-law.

Oct. 17. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Affidavits of Thomas Jarrett, Acting Mayor, and Theodore Henry Connor, Clerk, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 291, intituled "Municipal Corporation of the Town of Haileybury. By-law No. 291. A By-law to authorize the issue of debentures for the sum of $10,970.83 to pay for the construction of certain sewers on the portions of the streets hereinafter mentioned and to provide for the levying of rates for the payment therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Haileybury, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1045.

Application by the Town of Sandwich, under 8 Edw. VII., Chap. 51, for validation of By-law No. 420 and debentures. ($1,300 for three cement bridges.)

Sept. 27. Application and material filed.

Sept. 28. Application and material considered and approved. Order to issue after 30 days from passing of By-law.

Oct. 20. Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Affidavits of Eugene Breault, Mayor, and E. R. North, Clerk, of the said Town, the verified copy of the said By-law and the other material filed.

The Board orders that the said By-law No. 420, intituled "By-law No. 420. A By-law to raise by way of loan the sum of $1,300.00 to pay the cost of building three cement bridges in the Town of Sandwich," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the

Municipal Corporation of the Town of Sandwich, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1046.

Application by the Town of Sandwich, under 8 Edw. VII., Chap. 51, for validation of By-law No. 421, and debentures. ($10,000 to build a Town Hall.)

Sept. 27. Application and material filed.

Sept. 28. Application and material considered and approved. Order to issue after 30 days from final passing of By-law.

Oct. 20.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Affidavits of Eugene Breault, Mayor, and E. R. North, Clerk, of the said Town, the verified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 421, intituled "By-law No. 421. A By-law to raise by way of loan the sum of $10,000 to build a Town Hall," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Sandwich, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1047.

Application by the Town of Sandwich, under 8 Edw. VII., Chap 51, for validation of By-law No. 422, and debentures. ($5,000 for extension of water mains.)

Sept. 27. Application and material filed.

Sept. 28. Application and material considered and approved. Order to issue after 30 days from final passing of By-law.

Oct. 20.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the Affidavits of Eugene Breault, Mayor, and E. R. North, Clerk, of the said Town, the verified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 422, intituled "By-law No. 422. A By-law to raise by way of loan the sum of $5,000.00 for the extension of water mains in the Town of Sandwich," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Sandwich, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1048.

Application by the Town of Smith's Falls, under 4 Edw. VII., c. 22, sec. 11, for approval of Interest Increase By-law 942. (Increasing from 4 per cent. to 5 per cent. the rate of interest on debentures, $1,560, issued under By-law 936.)

Sept. 28. Application and copies of By-laws filed—Letter for material in support of application.

Oct. 24. Material in support of application filed, considered and approved.

Order.

Upon the application of the above named Corporation, and upon reading the Notice of Application, the affidavits of Adam Foster, Mayor, and H. Laying, Treasurer, of the said Town, the certified copy of each of the said By-laws numbered 936 and 942, and the other material filed,

The Board orders that the said By-law No. 942, intituled "Corporation of the Town of Smith's Falls. By-law No. 942. A By-law to amend By-law No. 936," be and the same is hereby approved under and in pursuance of Section 388b of "The Consolidated Municipal Act, 1903," (4 Edward VII., Chapter 22, Section 11, (Ontario)).

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1049.

Application by the Township of Chapleau, under 8 Edw. VII., c. 51, for validation of By-law 26, and debentures, ($13,659.30 for waterworks).

Sept. 29. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. McKessock & McKessock, Solicitors for the Applicant, the Affidavit of T. J. Godfrey, Clerk of the said Township, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 26, intituled "By-law No. 26. A By-law to provide for the raising of Seven thousand dollars for the purpose of purchasing and erecting an Auxiliary Pumping Plant to be used in connection with the water works system and for extensions to the water mains of the Village of Chapleau, in the Township of Chapleau," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that certificate be granted approving the said By-law of the Municipal Corporation of the Township of Chapleau, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
(Seal.) Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1050.

Re Complaints as to Cutting off, at Indian Road, the Easterly end of the Mimico Division of the Toronto and York Radial Railway Company's Line, owing to Grand Trunk Railway Company's Grade Alteration Works.

(Indian Road Terminus.)

Sept. 21. Complaints having been received and investigated, Letter to Dominion Commission thereon.

Oct. 3. Notice received from Dominion Railway Commission of Appointment for Hearing on 12th inst., 10 a.m., in City Hall, Toronto.

Letter to Complainant and Company advising.

NOTE: At request of this Board the Dominion Commission provided for a continuation of the service to the old Eastern Terminus.

PROCEDURE FILE 1051.

October 3rd, 12.12 p.m. Received, under 6 Edw. VII., c. 30, sec. 44, ss. 4. Discharge dated 28th September, 1911, of Mortgage dated 1st February, 1893, made by the City and Suburban Railway Company, (now the Toronto Suburban Railway Company), to the Trust Corporation of Ontario, (now the Toronto General Trusts Corporation).

PROCEDURE FILE 1052. (P.F.P. 87).

The Canadian Copper Company,

vs.

Township of McKim.

(For approval of Private Mine Railway).

Oct. 3. Application filed.

Oct. 5. Plan and Profile (and two Blue Prints) filed, see P.F.P. 87.

Nov. 25. Revised Plan and Affidavit re Insulators filed as required by Board's Engineer.

Nov. 29. Revised Plan and affidavit re Insulators considered and approved.

Plans and Profiles approved and certified.

PROCEDURE FILE 1053. (P.F.P. 87).

The Huronion Company, Limited,

vs.

Township of McKim and The Chelmsford Telephone Company.

(Application for approval of Electric Power Transmission Line.)

Oct. 3. Application and consent by Chelmsford Company filed.

Oct. 5. Profile (and two Blue Prints) filed. (See P.F.P. 87).

Nov. 25. Revised Plan and affidavit re Insulators filed as required by Board's Engineer.

Nov. 29. Plan and affidavit considered and approved.

Plans and Profiles approved and certified.

PROCEDURE FILE 1054.

Application by Town of Walkerville, under 10 Edw. VII, c. 85, sec. 5, for extension of debenture issue period under By-laws 381 and 413. ($30,534.05 to construct a relief main sewer.)

Oct. 9. Application and material filed. Letter for copy of amending By-law 413.

Oct. 16. Copy of amending By-law filed.

Oct. 17. Application approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by John Henry Coburn, Esquire, Solicitor for the Applicant, the affidavits of Walter Chater, Mayor, and Cecil H. Robinson, Clerk of the said Town, the certified copy of each of the said By-laws, and the other material filed,

The Board orders that in pursuance of the provisions of Section 384, of "The Consolidated Municipal Act, 1903," as amended by Section 5 of "The Municipal Amendment Act, 1910," the time for the issuing of the debentures authorized by By-law No. 381 of the said Town, intituled "By-law No. 381 of the Corporation of the Town of Walkerville. To provide for borrowing money by the issue of debentures to the amount of $30,534.05, for the construction of a relief main sewer in the said Town of Walkerville," as amended by By-law No. 413, intituled "By-law No. 413 of the Corporation of the Town of Walkerville to amend By-law No. 381 of the said Corporation," be and the same is hereby extended up to and inclusive of the Thirty-first Day of December, 1911.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1055

Application by the Township of Etobicoke, under 9 Edw. VII, chap. 73, sec. 12, as amended by 10 Edw. VII, chap. 85, sec. 6, for approval of By-law No. 1060, ($8,000.00, payment on Subway ordered by Dominion Railway Commission).

Oct. 12. Application and material filed, and considered. Letter to Applicant's Solicitors to file amended application.

Oct. 13. Amended application filed.

Oct. 14. Amended application considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Montgomery, Fleury and Montgomery, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law, intituled as follows: "By-law No. 1060. A By-law to authorize the issue of debentures of the Township of Etobicoke to the amount of $8,000.00 for the payment of the amount ordered by the Board of Railway Commissioners for Canada to be paid by the Township of Etobicoke for the erection of the bridge or subway by the Grand Trunk Railway Company of Canada over Queen Street in the Township," be and the same is hereby approved, under and in pursuance of Section 12 of the Municipal Amendment Act, 1909, as amended by Section 6 of the Municipal Amendment Act, 1910.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1056.

Application by the Hamilton and Dundas Street Railway Company, under 6 Edw. VII, chap. 30, sec. 221, for approval of Frederick B. Griffith as Examiner of Motormen.

Oct. 14. Application and material filed, considered and approved.

Order.

Upon the application of the Hamilton and Dundas Street Railway Company, and upon reading the affidavit of Edward P. Coleman, Manager of the said Railway.

The Board orders that the appointment of the said Frederick B. Griffith, Superintendent, as an examiner of motormen for the said Company, be and the same is hereby approved, under and in pursuance of Section 221 of "The Ontario Railway Act, 1906."

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1057.

Application by the Hamilton, Grimsby and Beamsville Electric Railway Company, under 6 Edw. VII. Chap. 30, sec. 221, for approval of Frederick B. Griffith as examiner of Motormen.

Oct. 14. Application and material filed, considered and approved.

Order.

Upon the application of the Hamilton, Grimsby and Beamsville Electric Railway Company, and upon reading the affidavit of Edward P. Coleman, Manager of the said Railway,

The Board orders that the appointment of the said Frederick B. Griffiths, Superintendent, as an examiner of motormen for the said Company, be and the same is hereby approved, under and in pursuance of Section 221 of "The Ontario Railway Act, 1906,"

(Signed) JAMES LEITCH.
(Seal.) Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 1058.

Application by the Town of Midland, under 6 Edw. VII. c. 34, sec. 21, for approval of Electric Light and Waterworks Extension By-law 787. ($6,500.)

Oct. 16. Application and material filed.

Oct. 17. Application and material considered and approved.

Order.

Upon the application of the above named Corporation, and upon reading the Notice of Application filed by W. Finlayson, Esquire, Solicitor for the Applicant, the affidavits of William T. Dudley, Chairman, and Samuel J. Millikin, Superintendent and Secretary-Treasurer, of the Water and Light Commission of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 787, intituled "Town of Midland By-law No. 787. A By-law to provide for the extension and improvement of the waterworks and electric light systems of the Town of Midland, and to raise the sum of $6,500.00 for that purpose," be and the same is hereby approved.

(Signed) JAMES LEITCH,
(Seal.) Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 1059. (I. C. $12,000.00.)

Application by the Town of Milton, under 8 Edw. VII, chap. 51, for validation of its By-law No. 441, ($12,000, bonus guarantee of bonds).

Oct. 18. Application and material filed.

Oct. 19. Application and material considered and approved.

Order.

(To be accepted by applicants subject to all risks as to validity and effect of jurisdiction of the Board.)

Upon the application of the said Corporation, and upon reading the Notice of Application filed by John W. Elliott, Esquire, Solicitor for the Applicants, the affidavits of George Albert Hemstreet. Clerk, of the said Town, and Joseph Wesley Williams, member of the aforesaid firm of Williams and son, the copy of the agreement made between the Town of Milton and the said John Wesley Williams, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 441, intituled "By-law No. 441. A By-law to authorize the Corporation of the Town of Milton to guarantee the Bonds of Williams and Son, Limited, of Milton, to the extent of Twelve Thousand dollars, and interest thereon at the rate of five per cent. per annum," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Milton, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
(Seal.) Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 1060.

Application by the Town of Sandwich, under 8 Edw. VII. chap. 51, for validation of its By-law No. 418, and debentures thereunder, ($475.01 to cover deficit on sale of debentures under By-law No. 389).

Oct. 21. Application and material filed.

Oct. 23. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the declarations of E. Breault, Mayor, and E. R. North, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 418, intituled "By-law No. 418. A By-law for the raising of $475.01, being the amount of a deficit on the sale of debentures under By-law No. 389 of the Town of Sandwich," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Sandwich, and declaring the same valid and binding, and that its validity is not open to question in any Court on

any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
(Seal.) Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 1061.

Application by the Town of Sandwich, under 8 Edw. VII, Chap. 51, for validation of its By-law No. 419, and debentures thereunder, ($1,002.95, deficit on sale of debentures under By-law No. 399).

Oct. 21. Application and material filed.

Oct. 23. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the declarations of E. Breault, Mayor, and E. R. North, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed.

The Board orders that the said By-law No. 419, intituled "By-law No. 419. A By-law for raising the sum of $1,002.95 the amount of a deficit on the sale of debentures under By-law No. 399 of the Town of Sandwich," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Sandwich, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

JAMES LEITCH,
(Seal.) Chairman of the Ontario Railway and Municipal Board.

PROCEDURE FILE 1062.

Application by the Town of Berlin, under 6 Edw. VII. Chap 34. sec. 21, for approval of its By-law No. 1128, ($25,150.00 for Electric Light Extensions).

Nov. 2. Application and material filed.

Nov. 6. Application and material considered and approved.

Order.

Upon the application of the above named Corporation, and upon reading the Notice of Application filed by Messrs. Millar and Sims, Solicitors for the Applicant, the affidavits of William Henry Schmalz, Mayor, and Albert Liborius Breithaupt, Chairman of the Light Commission, the certified copy of the said By-law, and the other material filed.

The Board orders that the said By-law No. 1128, intituled "Town of Berlin By-law No. 1128. A By-law to provide for the issue of debentures to the amount of $25,150 for additions and improvements to the Berlin Electric Light Works to improve the lighting of the streets of the said Town," be and the same is hereby approved.

(Signed JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1063.

Application by Hilton and Jocelyn Telephone Company, under 10 Edw. VII., c. 84, sec. 9, for Intercommunication with other Local Telephone Systems.

Nov. 2. Complaints by correspondence received. Board appoints 2 p.m., November 28th, at Richard's Landing, St. Joseph's Island, to hear all parties.

Nov. 25. Agreement of Settlement drawn and arranged at Richard's Landing by Board's Expert, settling matters in issue.

Dec. 1. Order approving agreement.

Dec. 5. Copy of Order and Copy of Agreement despatched to each party interested.

Upon the application of the above named Applicants, and upon reading the Agreement between the Applicants and the Respondents, dated the twenty-fifth day of November, 1911, and the maps and other material filed.

The Board orders that the said Agreement made between the Applicants and the Respondents, bearing date the Twenty-fifth day of November, A.D., 1911, be and the same is hereby approved.

And the Board further orders and directs that the said Agreement be, and the same is hereby incorporated as a part of this Order, and that the Applicants and Respondents shall observe and fulfil the conditions provided for in the said agreement.

And the Board further orders and directs that the interchange of service provided for in the said Agreement shall be established and be in operation within thirty days from the date hereof.

And the Board further orders and directs that the provisions of the said Agreement, and of this Order, shall apply to the Proprietors of the following telephone systems of lines upon St. Joseph's Island, viz.:—

The Richard's Landing Telephone Club,
The "A" Line,
The "C" Line,
The Huron Line,
The Tenth side Line or Central Line,
The Dowas and Shore Road Line.
The Fifth Side Line or Tenby Bay Line,
The "U" Line,
The Llewellyn Bay Line, and
The Lines of the Hilton and Jocelyn Municipal Telephone Association.

And the Board makes no Order for costs, except that the Applicants and Respondents shall pay $5.00 for the stamps required for this Order.

(Seal.) (Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

MEMORANDUM OF AGREEMENT.

BETWEEN:

THE ST. JOSEPH'S ISLAND AMALGAMATED TELEPHONE ASSOCIATION and THE RICHARD'S LANDING TELEPHONE CLUB,

hereinafter called the party of the first part,

and

THE HILTON & JOCELYN TELEPHONE ASSOCIATION,

hereinafter called the party of the second part.

Whereas at a meeting of the representatives of the telephone systems on St. Joseph's Island, held in the Town Hall, Richard's Landing, on the 25th day of November, 1911, it was decided to be in the interest of all parties that there be an interchange of service between the subscribers to the telephone systems of the parties hereto of the first and second parts:

This Agreement witnesseth as follows:

1. That an interchange of service shall exist between the telephone systems of the parties of the first and second parts;

2. That there shall be a charge of five cents per conversation of five minutes duration for all conversations originating on the lines of the party of the first part and terminating on the lines of the party of the second part, such charges to be payable to the parties of the second part;

3. That there shall be a charge of five cents per conversation of five minutes duration for all conversation originating on the lines of the party of the second part and terminating on the lines of the party of the first part, such charges to be payable to the party of the first part:

4. The charges referred to in the two preceding clauses shall be collected by the party upon whose line the calls originate, as the case may be, and the total amount of such charges shall be remitted monthly to the party upon whose lines such calls terminate, as the case may be;

5. That the interchange of service provided for in Clause 1 hereof shall be carried over a direct trunk wire between the respective systems of the parties of the first and second part, each party to bear half the cost of erecting such trunk wire:

6. This Agreement shall be from year to year until cancelled by three months' notice in writing by either party, and shall be subject to the approval of The Ontario Railway and Municipal Board.

Signed this Twenty-fifth day of November, 1911:

On behalf of the Party of the First Part,

(Sgd.) GEO. HONSBERGER,
Chairman.

Witness:
(Sgd.) F. DAGGER.

(Sgd.) H. S. HYLAND,
Secretary.

On behalf of the Party of the Second Part,

Witness:
(Sgd.) F. DAGGER.

(Sgd.) J. S. REESOR,
Secretary, Hilton & Jocelyn Telephone Association.

PROCEDURE FILE 1064.

The Economical Mutual Fire Insurance Company of Berlin, vs. Town of Berlin. (Assessment Appeal).

Nov. 6. Notice of Appeal received from Town Clerk of Berlin.

Appointment issued for Hearing at Board's Chambers Nov. 23rd, at 2.30 p.m.

Nov. 23. Hearing. Judgment reserved.

Nov. 24. Judgment delivered allowing appeal.

Order.

The Appeal herein of the Applicant from the decision of the Court of Revision of the Town of Berlin, dated 27th October, 1911, dismissing the Appeal of the said Company against an assessment for income coming on to be heard before this Board upon Thursday, 23rd November, 1911, in presence of Counsel for both parties, upon reading the papers and proceedings herein, and upon hearing what was alleged by Counsel aforesaid, and this Board having reserved Judgment until this 24th day of November, 1911.

1. It is ordered that the said Appeal be and the same is hereby allowed.

2. And it is further ordered that the Respondents do pay $10.00 for Law Stamps upon the issuance of this Order, but save as aforesaid this Board doth not make any further Order as to costs.

(Sgd.) JAMES LEITCH.
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

OPINION OF THE BOARD.

This is an appeal from the decision of the Court of Revision of the Town of Berlin, dismissing the appeal of the Appellants against their assessment for income.

The Appellants are a Mutual Insurance Company. The Company has no capital stock or shareholders. For some years the Company has accumulated its surplus premiums and has invested them in various securities. The investments constitute the Company's reserve fund. The Company owns its head office where its business is carried on, and for which it is assessed and pays taxes. The Company is also assessed under clause (c), of subsection (1), of section 10, of the Assessment Act, for a business assessment.

Under section 11 of the Assessment Act only the following persons shall be assessed and taxed in respect of income:—

(*a*) Every person not liable to business assessment under section 10;

(*b*) Every person whose income is not derived from the business in respect of which he is assessable for business assessment;

(*c*) Any person liable to a business assessment under clause (f), of subsection (1), of section 10, in respect of income derived by him from his business, profession or calling to the extent of which such income exceeds the amount of such business assessment.

Subsection (7), of section 10, provides that every person liable to a business assessment under subsection (1) shall not be subject to assessment in respect of income derived from such business, nor shall the premiums or investments of an Assurance Company be assessable.

The only business the Company carries on is the business of Mutual Insurance. The Company have the right, which they have exercised, to form a reserve fund of all moneys which remain on hand at the end of each year, after the payment of the ordinary expenses and losses of the Company. The Board of Directors may also levy an annual assessment not exceeding ten per cent. of the premium notes or undertakings held by the Company, and such reserve fund may, from time to time, be applied to pay off such liabilities of the Company as may not be provided for out of the ordinary receipts of the same or any succeeding year. The reserve must be invested, as provided by the Insurance Act. It cannot be divided amongst the policy holders. It is a fund to meet unforeseen liabilities.

We do not think that the income that is the subject of this Appeal is liable to assessment. The Appeal should be allowed.

We make no order as to costs, except that the Respondents shall pay $10.00 for the stamp on the formal order.

Dated this 24th day of November, A.D., 1911.

(Sgd.) JAMES LEITCH
Chairman of The Ontario Railway and Municipal Board.

PROCEDURE FILE 1065.

Nelson Telephone Company, Limited,

vs.

A. M. Shaver.

(Application for Intercommunication under 10 Edw. VII., Chap. 84. Sec. 9.)

Nov. 8. Application, plan and agreement filed.

Dec. 30. After negotiations, Board arranged Agreement between parties.

Memorandum of Agreement made in duplicate this Thirtieth day of December, 1911,

BETWEEN:

THE NELSON TELEPHONE COMPANY, LIMITED, LOWVILLE, ONTARIO, its successors or assigns.
of the First Part, and

A. M. SHAVER, of ANCASTER, ONTARIO, his successors or assigns.
of the Second Part.

Whereas the parties of the First Part and Second Part are operating telephone systems in territories adjacent to each other, in accordance with provisions of Section 8 of "The Ontario Telephone Act, 1910."

It is mutually agreed as follows:—

1. Each party shall build a trunk line consisting of one No. 12 iron metallic circuit from its central office at Lowville and Waterdown respectively, to a point on the town line between the townships of Nelson and East Flamboro adjacent to Lake Medad, and shall connect the said trunk line with their respective switchboards at Lowville and Waterdown in such manner as will enable the subscribers of the telephone systems of either party to be switched through to each other.

2. A toll charge of ten cents per conversation of three minutes' duration and three cents per minute over three minutes' duration shall be made to each subscriber, and of fifteen cents per conversation of three minutes' duration and three cents per minute beyond that period to each non-subscriber using the said trunk line, such charge to be collected by the party upon whose system each conversation originates.

3. Each party shall keep a correct record of all calls switched over said trunk line and of the charges therefor, and upon the tenth day of each month shall forward, each to the other, a statement showing the total receipts from all outgoing calls for the said trunk line during the preceding month, together with a remittance for half the amount of such total receipts.

4. In the event of any person requiring telephone service with the system of the party of the first part, upon a road already occupied by the pole leads of the party of the second part, the last named party shall permit the party of the first part to place the necessary circuit upon the aforesaid pole leads upon payment of a rental of ten cents per circuit per annum for each pole upon which such circuit may be placed.

5. In the event of any person requiring telephone service with the system of the party of the second part upon a road already occupied by the pole leads of the party of the first part, such last named party shall permit the party of the second part to place the necessary circuit upon the aforesaid pole leads upon payment of a rental of ten cents per circuit per annum for each pole upon which such circuit may be placed.

6. Neither party shall make any rebate or reduction in its charges for telephone service as at present existing.

7. It is also understood and agreed that neither party shall, after the date hereof, either directly or indirectly influence subscribers to the system of one party to become subscribers to the system of the other party.

8. This agreement is entered into subject to the approval of the Ontario Railway and Municipal Board, and shall continue from year to year until cancelled by three months' notice in writing by either party prior to the expiration of any year.

Signed and Sealed this thirtieth day of December, 1911.

In the presence of:

Nelson Telephone Company, Limited.

(Seal.)

(Sgd.) T. G. RAMSHAW,
Secretary.

North Wentworth Telephone Company.

(Seal.)

(Sgd.) A. M. SHAVER,

Witness:
(Sgd.) F. DAGGER.

PROCEDURE FILE 1066.

Walter M. Brain,

vs.

Chinguacousy Municipal Telephone Company.

Application for Telephone Service (under Sec. 12) and *re* Respondent's Agreement with Bell Telephone Company (under Sec. 11) of the Ontario Telephone Act, 1910.

Nov. 15. Application filed.

Dec. 4. Appointment for Hearing 14th inst.

Dec. 14. Hearing. Board directs its expert, F. Dagger, to inspect and report, and reserves judgment pending such report.

PROCEDURE FILE 1067.

Application by the Town of Sudbury, under 6 Edw. VII., c. 34, sec. 21, for approval of Waterworks Extension By-law 275 ($11,647.00).

Nov. 17. Application anl material filed.

Dec. 18. Material arranged for completion as directed, and considered and approved.

Order.

Upon the application of the above named Corporation, and upon reading the Notice of Application filed by Messrs. Clary & Buchanan, Solicitors for the Applicant, the affidavits of Lawrence O'Connor, Mayor, and George Elliot, Clerk, of the said Town, the certified copy of the said By-law No. 275, and the other material filed.

The Board orders that the said By-law No. 275, intituled "By-law No. 275. A By-law to provide for the extension of the waterworks system in the Town of Sudbury, and to raise the sum of $11,647.00 for the said purpose," be and the same is hereby approved.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1068.

Application by the Town of Owen Sound, under sec. 420 of the Consolidated Municipal Act, 1903, for approval of Sinking Fund Investment By-law 1502 ($3,000 of Sinking Fund to be used in purchase of Debentures issued under By-law 1480).

Nov. 20. Application and material filed.

Nov. 23. Application and material considered and approved.

Order.

Upon the application of the Municipal Corporation of the Town of Owen Sound, and upon reading the Notice of Application filed by R. W. Evans, Esquire, Solicitor for the Applicant, the affidavits of Elias Lemon, Mayor, Andrew F.

Armstrong, Treasurer, and Charles Gordon, Clerk, of the said Town, the certified copy of the said By-law No. 1502, and the other material filed.

The Board orders, under and in pursuance of Section 420 of: The Consolidated Municipal Act, 1903," and of Section 53 of "The Ontario Railway and Municipal Board Act, 1906," that the said By-law No. 1502 of the said Town, intituled "By-law No. 1502 of the Town of Owen Sound. A By-law authorizing the purchase and the application to the Ontario Railway and Municipal Board for leave to purchase, out of such sinking funds as may be available, the debentures issued under By-law No. 1480," be and the same is hereby approved.

(Sgd.) JAMES LEITCH.
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1069.

Application by the Town of Owen Sound, under sec. 420 of the Consolidated Municipal Act, 1903, for approval of Sinking Fund Investment By-law 1507 ($2,000 debentures under said By-law to be purchased out of Sinking Funds available).

Nov. 20. Application and material filed.

Nov. 23. Application and material considered and approved.

Order.

Upon the application of the Municipal Corporation of the Town of Owen Sound, and upon reading the Notice of Application filed by R. W. Evans, Esquire, Solicitor for the Applicant, the affidavits of Elias Lemon, Mayor, Andrew F. Armstrong, Treasurer, and Charles Gordon, Clerk, of the said Town, the certified copy of the said By-law, and other material filed.

The Board orders, under and in pursuance of Section 420 of "The Consolidated Municipal Act, 1903," and of Section 53 of "The Ontario Railway and Municipal Board Act, 1906," that the said By-law No. 1507, of the said Town, intituled "By-law No. 1507 of the Town of Owen Sound. A By-law to authorize the issue of debentures for the sum of $2,000,00 to pay for certain extensions of the waterworks system in pursuance of the order of the Ontario Railway and Municipal Board." be and the same is hereby approved.

(Sgd.) JAMES LEITCH.
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1070.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, for approval of Agreement with the Town of Lucknow.

Nov. 24. Application and material filed.

PROCEDURE FILE 1071.

Application by the Town of Dundas, under 6 Edw. VII., c. 34, sec. 21, and amendments, for approval of By-law 684 ($8,000 for extension of Hydro-Electric Power Distribution Plant).

Nov. 24. Material filed and applicant's counsel heard by the Board.

Nov. 29. Material considered and approved.

Order.

Upon the application of the above-named Corporation, and upon reading the Statutory Declarations of John Stephen Fry, Clerk, Charles Collins, Member of the Municipal Council and Chairman of the Fire, Water, Light, Power and Industrial Committee, and Richard Todd Wilson, Mayor, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 684, intituled "By-law Number 684 to provide for borrowing $8,000.00 to defray cost of additional plant to distribute Hydro-Electric Power and to authorize the issue of debentures for purpose of raising said sum," be and the same is hereby approved.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1072.

Application by the Town of Dundas, under 6 Edw. VII., c. 34, sec. 21, for approval of By-law 685 ($3,500 for Waterworks Extensions).

Nov. 24. Material filed and Applicant's Counsel heard by the Board.

Nov. 29. Material considered and approved. Order.

Upon the application of the above named Corporation, and upon reading the Statutory Declarations of John Stephen Fry, Clerk, Charles Collins, Member of the Municipal Council, and Chairman of the Fire, Water, Light, Power and Industrial Committee, and Richard Todd Wilson, Mayor, of the said Town, the certified copy of the said By-law and the other material filed,

The Board orders that the said By-law No. 685, intituled "By-law No. 685. To extend and improve the Town Waterworks." be and the same is hereby approved.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1073.

Application by Town of Dundas, under 8 Edw. VII., c. 51, for validation of By-law 687 and the Debentures thereunder ($2,000 for Isolation Hospital).

Nov. 24. Copy of By-law filed and Applicant's Counsel heard by the Board.

Nov. 27. Copy of By-law considered.

Nov. 28. Letter to Applicants for Affidavits verifying recitals in the By-law.

Nov. 30. Material filed as requested.
Dec. 1. Material considered and approved by the Board.
Dec. 15.

Order.

Upon the application of the said Corporation, and upon reading the Statutory Declarations of Richard Todd Wilson, Mayor, and John Stephen Fry, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 687, intituled "By-law No. 687 to establish and furnish an Isolation Hospital in the Town of Dundas" be and the same is hereby approved and validated.

And it is ordered, pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Dundas, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1074.

Application by the Town of Copper Cliff, under 8 Edw. VII., c. 51, for validation of By-law No. 62, and Debentures ($30.000 for Public School).

Nov. 27. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the notice of application filed by Messrs. Clary & Buchanan, Solicitors for the Applicant, the affidavits of George Craig, Mayor, and Thomas Stoddart, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed.

The Board orders that the said By-law No. 62, intituled "By-law Number 62. A By-law to provide for the raising of $30.000 by way of debentures, for the erection of a school house in the Town of Copper Cliff." be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Copper Cliff, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1075.

Re Church Street Line, Toronto Railway Company.

Nov. 28. Complaint filed. (This Complaint included in and will be heard with P.F. 1081.)

PROCEDURE FILE 1076.

Ottawa Young Men's Christian Association

vs.

City of Ottawa.

(Assessment Appeal.)

Nov. 28. Notice of Appeal filed.

PROCEDURE FILE 1077.

The Grey Nuns

vs.

The City of Ottawa.

(Assessment Appeal.)

Nov. 28. Notice of Appeal filed.

PROCEDURE FILE 1078.

The Grey Nuns

vs.

The City of Ottawa.

(Assessment Appeal.)

Nov. 28. Notice of Appeal filed.

PROCEDURE FILE 1079.

The Sisters of the Congregation of Notre Dame

vs.

The City of Ottawa.

(Assessment Appeal.)

Nov. 28. Notice of Appeal filed.

PROCEDURE FILE 1080.

The Ottawa Ladies' College

vs.

The City of Ottawa.

(Assessment Appeal.)

Nov. 28. Notice of Appeal filed.

PROCEDURE FILE 1081.

City of Toronto

vs.

The Toronto Railway Company.

(Re Transfers, and Dundas Street and other services, and for longer rush hour service.)

Nov. 29. Application filed.

Dec. 6. Appointment for Hearing Dec. 15th, 1911, at 2 p.m., at Board's Chambers.

Dec. 15. Hearing. Matters mentioned in Application directed to be taken up, considered and disposed of separately.

Re Transfers.—Board orders that Hearing be adjourned to date to be fixed in January, and that, pending such adjournment, transfers to be granted by the Company as applied for by the City.

Re Dundas Street service.—Board orders that service be given to Keele Street.

Re Roncesvalles Avenue service.—Hearing adjourned to date to be fixed in January, pending adjournment Company's Queen Street cars to be run up Roncesvalles Avenue to Boustead Ave., and "Y" there.

Remaining matters in issue adjourned for Hearing to date in January to be fixed by the Board, in the meantime Discovery and Production by Railway Company directed on Application of Counsel for City (in connection with routing cars, par. 12 of Notice of Application).

Dec. 30. Board fixes Tuesday, Jan. 9th, at 2.30 p.m., for continuation of Hearing at City Hall.

Upon the application of the above-named Applicants, in presence of the Applicants and Respondents, on hearing the evidence adduced, and upon hearing Counsel for the Applicants and Respondents,

(1) The Board orders that the Respondents do forthwith and until further order, issue proper and sufficient transfers to all passengers using their lines of railway, to enable such passengers to reach their destination by a continuous journey, although cars of a different route may operate over part of the said journey; and that such passengers shall be entitled to perform part of their journey upon the cars of any line operating along the course of such journey: and such passengers shall, upon payment of a fare, be entitled to a transfer from the cars of any such route to

any other cars. (2) That the Respondents shall at once operate and continue until further order the full service upon Dundas Street to the end of the line at Keele Street, and are hereby prohibited from Y-ing any of their cars upon the said service at any point short of the end of the route. (3) That the said Respondents shall run and continue to operate until further order their cars upon the Queen Street line, over the Roncesvalles Avenue line, as far as Boustead Avenue, where such cars may be Y-ed and return.

And the Board hereby reserves further directions and costs until further order.

(Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1082.

Application by the County of Haldimand, under 8 Edw. VII., Chap. 51, for validation of By-law 487, ($100,000 for highways).

Dec. 5. Material filed and considered.
Letter for further material.
Dec. 7. Application withdrawn.

PROCEDURE FILE 1083.

The Whyte Packing Company, Limited

vs.

Stratford.

(Assessment Appeal.)

Dec. 5. Notice of Application filed.
Dec. 9. Appointment for Hearing 21st inst.. at Stratford.
Dec. 21. Hearing—Judgment reserved.
Dec. 26. Judgment delivered reducing assessment to $30,000.00.

Order.

The Applicants are the owners of certain buildings and lands in the City of Stratford. Their lands are assessed for the year 1912 at $1.000 and their buildings at $39,000; their machinery is exempt and is not assessed.

The Applicants appealed to the Court of Revision for the City of Stratford, to have their assessments reduced on the grounds that the amounts were excessive. The appeal was dismissed, and the original assessments were confirmed.

The Applicants now appealed from the decision of the Court of Revision, on the ground that the assessed values are too high, and ought to be reduced.

The Board after hearing the evidence adduced on behalf of the parties hereto, and upon hearing counsel for the Applicants and Respondents on the 21st inst.. at the said City of Stratford, and judgment being reserved until this day. are of the

opinion that the amount of $39,000 assessed against the buildings ought to be reduced to $29,000, and it is accordingly reduced.

The Assessment of $1,000 against the lands is hereby confirmed.

The Board makes no order as to the costs other than that the Applicants and Respondents shall bear equally the costs of the day fixed at $15.00.

Dated at Toronto the 26th day of December, 1911.

(Signed) A. B. Ingram,
Vice-Chairman.

(Signed) H. N. Kittson,
Member.

This appeal coming on to be heard at Stratford on Thursday the 21st day of December, 1911, and upon hearing the evidence adduced, and upon hearing Counsel for the Appellant and for the Respondent, this Board was pleased to direct that this appeal should stand over for judgment, and coming on this day for judgment,

This Board doth order and direct that the appeal of the above named Appellant, from the Court of Revision of the Municipal Corporation of the City of Stratford, against the assessment for the year 1912 on the building of the Appellant situate on lots numbers 276, 277, 278, 279, 280, 281, 282, 283, 284, part of 352, lots 353, 354, 355, 362, 363, 367, 368, 369, parts of lots 342, 343, 344, and 345, and lots 346, 359, 360, 361, 364, 365, 366 and part of Corcoran Street in Gordon's Survey on Linton Avenue in said City, appearing on the assessment roll as No. 2406, be and the same is hereby allowed in that the assessment of said building be, and the same is hereby reduced from $39,000 to the sum of $29,000, Twenty Nine Thousand Dollars, and that the assessment of the said land of $1,000, One Thousand Dollars, be and the same is hereby confirmed.

And this Board was pleased to make no order as to costs of this appeal other than that the Appellant affix the sum of $15.00 in Law Stamps to this order, of which sum the Respondent shall pay one-half.

(Sgd.) A. B. Ingram,
Vice-Chairman.

(Seal.)

Procedure File 1084.

Between:

THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK,

Applicant,

and

ELI DANNER,

Respondent.

(To have the Board fix the compensation for the Respondent's lands, under 10 Edw. VII., c. 11 and c. 21.)

Dec. 6. Notice to Owner and Application to Board Filed. Board appoints Tuesday, Dec. 19, at 2.30 p.m., at Administration Buildings, Niagara Falls, for Hearing.

Dec. 16. Hearing adjourned to Jan. 4th, 1912, at request of Counsel.

PROCEDURE FILE 1085.

BETWEEN:

THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK,

Applicant,

and

SCHOOL TRUSTEES, Sec. No. 1, Lot. No. 17, Broken Front Concession, Township of Willoughby,

Respondent.

(To have the Board fix the compensation for the Respondent's lands, under 10 Edw. VII., c. 11 and c. 21.)

Dec. 6. Notice to Owner and Application to Board Filed. Board appoints Tuesday, the 19th inst., at 2.30 p.m., at Administration Buildings, Niagara Falls, for the Hearing.

Dec. 16. Hearing adjourned to Jan. 4th, 1912, at request of Counsel.

PROCEDURE FILE 1086.

BETWEEN:

THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK,

Applicant.

and

SCHOOL TRUSTEES, Sec. No. 2, Lot No. 16, Broken Front Concession, Township of Willoughby,

Respondent.

(To have the Board fix the compensation for the Respondent's lands, under 10 Edw. VII., c. 11 and c. 21.)

Dec. 6. Notice to Owner and Application to Board Filed. Board appoints Tuesday, the 19th inst., at 2.30 p.m., at Administration Buildings, Niagara Falls, for the Hearing.

Dec. 16. Hearing adjourned to Jan. 4th, 1912, at request of Counsel.

PROCEDURE FILE 1087.

Re City of Toronto and Toronto and York Radial Railway Company. (Application to Board under 1 Geo. V., c. 119, sec. 6 (2).)

Dec. 6. Hearing adjournel *sine die* pending negotiations, and by consent of both parties.

PROCEDURE FILE 1088.

Application by Town of Simcoe, under 8 Edw. VII., c. 51, for validation of By-law 457, and debentures ($30,000 for bonus to Dominion Canners, Limited).

Dec. 7. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the affidavits of Arthur T. Sihler, Mayor, Frank Reid, Treasurer, and Walter C. McCall, Clerk, of the said Town, the copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 457, intituled "By-law No. 457 of the Corporation of the Town of Simcoe, being a By-law for granting aid to establish a Lithograph Plant in the Town of Simcoe by granting a bonus of Thirty Thousand Dollars ($30,000) to Dominion Canners, Limited, and partial exemption from taxation,'" be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Simcoe, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

Procedure File 1089.

Application by the City of Guelph, under 6 Edw. VII., chap 34, sec. 21, for approval of its By-law 872. ($30,000 for gas and electric light extensions.)

Dec. 9. Application and material filed.

Dec. 19. Application and material considered and approved.

Order.

Upon the application of the above named Corporation, and upon reading the affidavits of George John Thorp, Mayor, and Thomas James Moore, Clerk, of the said City, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 872, intituled "The Corporation of the City of Guelph. By-law No. 872. A By-law to provide for the issue of Debentures to the amount of $30,000.00 for the purpose of paying for extensions and improvements to the Gas and Electric Light Works and like purposes," be and the same is hereby approved.

(Sgd.) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

Procedure File 1090.

Application by the City of Guelph, under sec. 388a of the Consolidated Municipal Act, 1903, for approval of Bridge Construction By-law 877. ($2,810.00.)

Dec. 9. Application and material filed, considered and referred to Board's engineer.

PROCEDURE FILE 1091.

Application by the Town of Little Current, under 8 Edw. VII., c. 51, for validation of By-law 221, and debentures. ($5,000 for sidewalks.)

Dec. 12. Application and material filed, considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application, the affidavits of Peter Joseph McDonald, Mayor, and David McGilvery, Clerk, of the said Town, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 221, of the Municipal Corporation of the Town of Little Current, intituled "By-law No. 221. Town of Little Current, Ont. A By-law to borrow the sum of $5,000.00 for the purpose of building permanent sidewalks and improving certain streets as hereinafter provided and to authorize the issue of Debentures therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Little Current, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1092.

Application by the Bell Telephone Company of Canada, under 10 Edw. VII., c. 84, for approval of agreement with the Town of Owen Sound.

Dec. 14. Application and material filed.

Dec. 22. Application and material considered and approved.

Dec. 26. Order.

PROCEDURE FILE 1093. (I. C. $11,000.)

Application by the Village of Chippawa, under 8 Edw. VII., c. 51, for validation of its By-law 263, and debentures. ($11,000 for erection of a school house.)

Dec. 18. Application and material filed.

Dec. 19. Application and material considered and approved

Order.

Upon the application of the said Corporation, and upon reading the Statutory Declaration of W. E. B. McKenzie, Reeve, William A. Myer, Clerk, and Jas. H. Pierce, Assessor, of the said Village, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 263 of the Municipal Corporation of the Village of Chippawa, intituled "By-law No. 263 for 1911. A By-law to provide for the issue of debentures of the Village of Chippawa to the amount of Eleven Thousand Dollars ($11,000.00) for the erection of a school house for the said Village, and to raise the sum required therefor," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Village of Chippawa, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) James Leitch,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

Procedure File 1094. (I. C. $12,000.00).

Application by the Village of Westport, under 8 Edw. VII., c. 51, for validation of its By-law No. 61, and debentures, ($12,000 bonus to Westport Manufacturing and Plating Company).

Dec. 18. Application and material filed.
Dec. 22. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by W. C. Chisholm, Esquire, agent for the Solicitor for the Applicants, the affidavits of John Henry Whitmarsh, Reeve, William Cusine Fredenburgh, Treasurer, and Winfield Scott Ripley, Clerk, of the said Village, the certified copy of the said By-law, and the other material filed,

The Board orders that the said By-law No. 61 of the Municipal Corporation of the Village of Westport, intituled "By-law No. 61. By-law to authorize the issue of debentures of the Village of Westport to the amount of $12,000, which said sum is to be granted by way of bonus to the Westport Manufacturing and Plating Company, Limited, $10,000 of which said sum is by way of loan, and to exempt the said The Westport Manufacturing & Plating Company, Limited, from all Municipal taxation (excepting school taxes) for a period of ten years from the time hereinafter fixed for the By-law to come into effect on the property to be occupied by the said Company," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law

of the Municipal Corporation of the Village of Westport, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Signed) JAMES LEITCH,
Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1095.

Detroit River Tunnel Company

vs.

City of Windsor.

(Assessment Appeal.)

Dec. 19. Notice of Appeal filed.

PROCEDURE FILE 1096. (see P. F. 1102).

Application by Donald J. McAnulty for annexation to Hamilton of Part Lot 3, Con. 1, Township of Barton (Between Beach Road and Grand Trunk Railway).

Dec. 20. Petition filed. (This application included in and covered by Application in P. F. 1102).

PROCEDURE FILE 1097.

Application by the City of Stratford, under 6 Edw. VII., c. 34, sec. 21 for approval of Waterworks Extension By-law 1842, ($23,000).

Dec. 23. Application and material filed and Counsel heard in support of Application. Judgment reserved.

Dec. 26. Order approving By-law.

Upon the application of the above named Corporation, and upon reading the Notice of Application filed by Messrs. Robertson and Coughlin, Solicitors for the Applicant, the affidavits of John Davis Barnett, Chairman, and William Henry Tretheway, Secretary-Treasurer, of the Board of Water Commissioners, John Brown, Mayor, and Robert Rigg Lang, Clerk, of the said City, the verified copy of the said By-law, and the other material filed, and upon hearing Counsel for the Applicants.

The Board orders that the said By-law No. 1842, intituled "By-law No. 1842 of the City of Stratford. A By-law to raise the sum of Twenty-three thousand Dollars for the purpose of meeting the expense of certain extensions and improvements in respect of the Water-works of the City of Stratford," be and the same is hereby approved.

(Signed) A. B. INGRAM,
Vice-Chairman of the Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1098.

Application by Town of Wingham, under 6 Edw. VII., c. 34, sec. 21, for approval of Waterworks Extension By-law 640, 1911, ($4,440.45).

Dec. 23. Application and material filed.

Dec. 26. Application and material considered—Letter re error in By-law as to amount of rateable property.

Dec. 29. Letter received in explanation. Application approved.

Order.

Upon the application of the above named Corporation, and upon reading the Petition of the Municipal Council, the Statutory Declarations of George Spotton, Mayor, John F. Groves, Clerk, and George Allen, Inspector of Waterworks System, of the said Town, the copy of the said By-law No. 640, and the other material filed.

The Board orders that the said By-law No. 640, intituled "Town of Wingham. By-law No. 640, 1911, of the Corporation of the Town of Wingham. A By-law to raise by way of loan the sum of $4,400.45 to pay the costs of extension made to the waterworks system of the Town of Wingham, during the years 1910 and 1911, and to authorize the issue of debentures for the said sum," be and the same is hereby approved.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1099.

Application by the Town of Cochrane, under 8 Edw. VII., c. 51, for validation of By-law 46, and debentures ($38,500 for various public works).

Dec. 27. Application and material filed.

Dec. 30. Application and material considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by J. M. McNamara, Solicitor for the Applicants, the affidavits of Walter Stanton Carter, Mayor, and Sidney L. Bradley, Clerk, of the said Town, the certified copy of the said By-law No. 46, and the other material filed.

The Board orders that the said By-law No. 46, of the Municipal Corporation of the Town of Cochrane, intituled "By-law No. 46. Being a By-law to provide for raising the sum of Thirty Eight Thousand Five Hundred Dollars ($38,500.00) by way of Loan, upon the security of debentures of the town of Cochrane, in the district of Nipissing, etc.," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Cochrane, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1100.

Application by the Town of Oshawa, under 6 Edw. VII., Chap. 34, sec. 21, as amended by 9 Edw. VII., c. 73, sec. 22, for approval of sewerage extension By-law No. 794. ($24,500.00 for sewerage purposes.)

Dec. 27. Application and material filed (See P.F. 738).

Dec. 29. Application and material considered. Letter to Applicant's Solicitors for proof that three-fourths of Council passed By-law.

PROCEDURE FILE 1101.

Application by the Town of Sudbury, under 8 Edw. VII., c. 51, for validation of By-law 275, and debentures, ($11,647 for waterworks extensions).

Dec. 29. Application filed (P.F. 1067 referred to).

Application considered and approved.

Order.

Upon the application of the said Corporation, and upon reading the Notice of Application filed by Messrs. Clary and Buchanan, Solicitors for the Applicant, the Affidavits of Lawrence O'Connor, Mayor, and George Elliot, Clerk, of the said Town the certified copy of the said By-law No. 275, and the other material filed,

The Board orders that the said By-law No. 275, of the Municipal Corporation of the Town of Sudbury, intituled "By-law No. 275. A By-law to provide for the extension of the waterworks system in the Town of Sudbury, and to raise the sum of $11,647.00 for the said purpose," be and the same is hereby approved and validated.

And it is ordered pursuant to the provisions of "The Ontario Municipal Securities Act, 1908," that a certificate be granted approving the said By-law of the Municipal Corporation of the Town of Sudbury, and declaring the same valid and binding, and that its validity is not open to question in any Court on any ground whatever, and that the debentures issued under the authority of and in accordance with the said By-law be also approved, and that the same be certified as provided by the said Act.

(Sgd.) JAMES LEITCH,
Chairman of The Ontario Railway and Municipal Board.

(Seal.)

PROCEDURE FILE 1102. (See P.F. 1096.)

Application for annexation to City of Hamilton of Lot No. 3 in the Broken Front Concession of the Township of Barton, and that part of Lot No. 3 in the First Concession thereof lying northerly of the southerly limit of the Grand Trunk Railway, Main Line.

Dec. 30. Declaration of Expediency of City Council of Hamilton filed.

PROCEDURE FILE 1103. (P.F.P. 89.)

Application, under 6 Edw. VII., c. 34, sec. 21, and amendments for annexation to the Town of North Toronto of Parts of the Township of York. (Plans 1570, 1611 and M346.)

Dec. 30. Petition of E. B. Stockdale and Charles D. Warren filed; also blue prints of said Plans, (See P.F.P. 89.)

TABULATED SUMMARY OF ACCIDENT REPORTS RECEIVED IN 1911.

Passengers.		Employees.		Travellers on highway		Travellers at crossing.		Trespassers.		Total.	
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
11	366		27	22	148					33	541

ACTS AND MEMO. OF SEVERAL ACTS UNDER WHICH THE BOARD EXERCISES JURISDICTION.

ANNEXATION OF TERRITORY TO MUNICIPALITY.
Section 16, cap. 19, 1903.
Section 1, cap. 34, 1906, as amended by,
Section 1, cap. 48, 1908.

AREA OF TOWN OR VILLAGE LIMITED.
Section 12, cap. 19, 1903.

ASSESSMENT APPEALS.
R.S.O., section 41 to 46, cap. 225, 1897.
Section 76, cap. 23, 1904.
Cap. 24, 1905.
Sections 51 and 52, cap. 31, 1906.
Sections 18 and 19, cap. 88, 1910.

APPROVAL OF BY-LAW INCREASING RATE OF INTEREST ON DEBENTURES.
Section 11, cap. 22, 1904, "388*b*."

REPEAL OF BY-LAW AS TO MONEYS NOT REQUIRED.
Section 391, cap. 19, 1903.

BY-LAW TO CHANGE MODE OF ISSUING DEBENTURES.
Section 8, cap. 40, 1907.

BY-LAW EXTENSION OF DEBENTURE ISSUE PERIOD.
Section 5, cap. 85, 1910.

BY-LAW FOR LAYING PIPES OR CONDUITS FOR ELECTRIC WIRES.
Section 13, cap. 40, 1907.

BY-LAWS AFFECTING PUBLIC ROADS.
Section 632, ss. 2, cap. 19, 1903.
Section 53, ss. 3, cap. 31, 1906.

BY-LAWS, APPROVAL OF CERTAIN CITY BRIDGES.
Section 388*a*, cap. 19, 1903.
Section 12, cap. 73, 1909.
Section 6, cap. 85, 1910.

BY-LAWS APPROVAL OF EXTENSION OF WATERWORKS, ELECTRIC LIGHT PLANT, SEWERS OR GAS WORKS.
Section 569, cap. 19, 1903, as amended by,
Section 21, cap. 34, 1906.
Section 53, cap. 31, 1906, s.s. (*d*).
Section 15, cap. 40, 1907.
Section 22, cap. 73, 1909.

COUNTY BOUNDARY LINES SETTLEMENT OF DISPUTES.
Sections 26, 27 and 28, cap. 40, 1907.

CONSOLIDATION OF FLOATING DEBT OR CONSOLIDATION OR RENEWAL OF DEBENTURES.
Rule 61*a*, page 421. Votes and Proceedings of Legislative Assembly, 27th March, 1907.

MORTGAGES TO BE DEPOSITED WITH BOARD:
Section 60, cap. 7, 1903.
Section 44, ss. 4, cap. 30, 1906.
Sections 41 and 42, cap. 33, 1908.

INVESTMENT OF SINKING FUND.
Section 420, cap. 19, 1903.
Section 53, cap. 31, 1906.

AN ACT TO SUPPLEMENT THE REVENUES OF THE CROWN. TAX ROLLS AND APPEALS.
Cap. 9, 1907.
Cap. 15, 1908.
Cap. 14, 1909.
Section 30, cap. 26, 1910.

AN ACT RESPECTING LOCAL TELEPHONE SYSTEMS.
Section 14, cap. 49, 1908.
Cap. 84, 1910.
Cap. 92, 1910.

AN ACT RESPECTING MUNICIPAL BY-LAWS AND AGREEMENTS.
Cap. 75, 1909.
Cap. 87, 1910.

AN ACT RESPECTING MUNICIPAL SECURITIES.
Cap. 51, 1908.
Cap. 76, 1909.
Cap. 86, 1910.

AN ACT RESPECTING PUBLIC WORKS OF ONTARIO.
Sections 29 to 40, cap. 11, 1910.

THE ONTARIO RAILWAY ACT.
Cap. 30, 1906.
Cap. 37, 1907.
Cap. 44, 1908.
Cap. 45, 1908.
Cap. 68, 1909.
Cap. 81, 1910.

THE ONTARIO RAILWAY AND MUNICIPAL BOARD ACT.
Cap. 31, 1906.
Cap. 38, 1907.
Cap. 46, 1908.
Cap. 82, 1910.
Cap. 83, 1910.

AN ACT TO AMEND THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY ACT.
Section 3, cap. 18, 1909.

WORKS ORDERED BY DOMINION OR ONTARIO RAILWAY COMMISSION.
(By-law need not be voted on, but must be approved by Ontario Board.)
Section 12, cap. 73, 1909.
Section 6, cap. 85, 1910.

"INTERSWITCHING."

Section 228, cap. 37, R.S.C., 1906.
Section 5, cap. 22, S.C., 1911.
Section 98, cap. 30, Ont. Statute, 1906.
cap. 52, Ont. Statute, 1911.

(NOTE.—The above list is prepared to facilitate reference to legislation, and does not purport to be exhaustive.)

TARIFF OF FEES.

The Ontario Railway and Municipal Board orders and directs that the following sums in law stamps shall be paid on the following orders and the following fees in every application or matter coming before the Board:—

In contentious matters requiring a hearing, there shall be paid the sum of $15.00 for each day or fraction thereof over one-half day, and the sum of $10.00 for half a day or fraction thereof occupied by the hearing, in law stamps.

On orders under The Municipal Securities Act, 1908, for validating By-laws and Debentures, the following sums shall be paid in law stamps:—

	Law Stamps.
Where the issue of Debentures amounts to $10,000	$15 00
Over $10,000 and up to $15,000	20 00
" $15,000 " $20,000	25 00
" $20,000 " $25,000	30 00
" $25,000 " $30,000	35 00
" $30,000 " $40,000	40 00
" $40,000 " $50,000	45 00
" $50,000 " $60,000	50 00
" $60,000 " $70,000	55 00
" $70,000 " $80,000	60 00
" $80,000 " $90,000	65 00
" $90,000 " $100,000	70 00
" $100,000 " $110,000	75 00
" $110,000 " $120,000	80 00
" $120,000 " $130,000	85 00
" $130,000 " $140,000	90 00
" $140,000 " $150,000	95 00
" $150,000 " $160,000	100 00
" $160,000 " $170,000	105 00
" $170,000 " $180,000	110 00
" $180,000 " $190,000	115 00
" $190,000 " $200,000	120 00

The following sums shall be paid on the following orders in law stamps:—

On Orders for Annexation of Territory $10.00
Mun. Act, Sec. 1, Cap. 34, 1906.

On Orders for approval of By-laws for works ordered by Dom. or Ont. Railway Boards $10.00
9 Edw. VII., c. 73, sec. 12; 10 Edw. VII., c. 85, sec. 6.

On Orders for approval of By-laws for extension of Waterworks, Electric Light or Gas Works $10.00
Mun. Act, Sec. 21, Cap. 34, 1906.

On Orders for approval of Sinking Fund Investment By-laws $5.00
Mun. Act, Sec. 420.

On Orders for approval of By-laws increasing the rate of interest on debentures $5.00
Mun. Act, Sec. 11, Cap. 22, 1904.

Orders for approval of Bridge Construction By-law $5.00
Sec. 388*a*, c. 19, 1903.

On Orders for approval of By-laws for stopping up, leasing or selling part of a road along the bank of any river or stream or along the shore of any lake $5.00
Mun. Act, Sec. 632, 1903.

On Orders approving Railway Companies' Public By-laws and Rules $2.00
Ry. Act, Sec. 150, Cap. 30, 1906.

On Orders approving Railway Companies' Tolls and Tariffs $2.00
Ry. Act, Sec. 169, Cap. 30, 1906.

On Orders approving Railway Companies' Examiner of Motormen $1.00
Ry. Act, Sec. 221, Cap. 30, 1906.

STATEMENT IN DETAIL OF TRAVELLING EXPENSES AND DISBURSEMENTS.

1911.		
Jan. —	A. B. Ingram, Vice-Chairman	$117 45
	Don. M. Campbell, Car Construction Expert	130 00
	J. F. H. Wyse, Consulting Engineer	120 00
	H. C. Small, Secretary and Office	20 15
Feb. —	James Leitch, K.C., Chairman	29 50
	A. B. Ingram, Vice-Chairman	1 80
	H. C. Small, Secretary and Office	40
May —	James Leitch, K.C., Chairman	32 90
	A. B. Ingram, Vice-Chairman	13 75
	H. N. Kittson, Commissioner	9 95
	H. C. Small, Secretary and Office	12 50
	Wm. C. Coo, Official Stenographer	11 95
June —	James Leitch, K.C., Chairman	360 25
	A. B. Ingram, Vice-Chairman	2 00
	H. N. Kittson, Commissioner	5 45
	H. C. Small, Secretary and Office	2 00
	Wm. C. Coo, Official Stenographer	2 80
July —	James Leitch, K.C., Chairman	185 30
Aug. —	James Leitch, K.C., Chairman	172 15
Sept. —	James Leitch, K.C., Chairman	120 50
	A. B. Ingram, Vice-Chairman	5 15
	H. N. Kittson, Commissioner	4 05
	H. C. Small, Secretary and Office	12 40
	Wm. C. Coo, Official Stenographer	7 60
Oct. —	A. B. Ingram, Vice-Chairman	108 90
	H. C. Small, Secretary and Office	20
Dec. —	A. B. Ingram, Vice-Chairman	7 95
	H. N. Kittson, Commissioner	4 90
	Wm. C. Coo, Official Stenographer	5 20
	H. C. Small, Secretary and Office	7 65
		$1,514 80

LIST 1.

ONTARIO ELECTRIC AND STEAM RAILWAYS THAT ARE IN ACTUAL OPERATION AND UNDER THE JURISDICTION OF THE ONTARIO RAILWAY AND MUNICIPAL BOARD, THE TEMISKAMING AND NORTHERN ONTARIO RAILWAY COMMISSION, AND THE NIAGARA FALLS PARK COMMISSIONERS.

BERLIN AND WATERLOO STREET RAILWAY COMPANY:

	Cap.	Year.
Incorporated by Letters Patent, 6th August, 1886, and March 15th, 1893 See Ontario Statutes	63	1872

BERLIN AND BRIDGEPORT ELECTRIC RAILWAY COMPANY:

BRANTFORD STREET RAILWAY COMPANY:

Ontario Statute	73	1897
Act to incorporate.		

See Grand Valley Railway Company, Woodstock, Thames Valley and Ingersoll Electric Railway Company, and Port Dover, Brantford, Berlin, and Goderich Railway Company.

CORNWALL STREET RAILWAY, LIGHT AND POWER COMPANY, LIMITED:
Incorporated by Letters Patent, April 18th, 1902.

GUELPH RADIAL RAILWAY COMPANY:
(Formerly Guelph Railway Company).

Ontario Statute	98	1895
Act to incorporate.		
Ontario Statute	79	1901
Ontario Statute	95	1903
(To change name).		
Ontario Statute	91	1905
Ontario Statute	125	1908
Ontario Statute	115	1910
Ontario Statute	124	1911
Ontario Statute	90	1911

HAMILTON STREET RAILWAY COMPANY:

Ontario Statute	100	1873
Act to incorporate.		
Ontario Statute	90	1893

HAMILTON AND DUNDAS STREET RAILWAY COMPANY:

Ontario Statute	87	1875-76
Act to incorporate.		
Ontario Statute	59	1897
Ontario Statute	65	1881
Ontario Statute	68	1884
Ontario Statute	68	1886
Ontario Statute	119	1890
Ontario Statute	100	1895
Ontario Statute	60	1898

HAMILTON, GRIMSBY AND BEAMSVILLE ELECTRIC RAILWAY CO.:

Ontario Statute	95	1892
Act to incorporate.		
Ontario Statute	87	1897
Ontario Statute	80	1901
Ontario Statute	76	1904
Ontario Statute	99	1907

HUNTSVILLE AND LAKE OF BAYS RAILWAY COMPANY:

Ontario Statute	113	1900
Act to incorporate.		
Ontario Statute	97	1903
Ontario Statute	18	1904
Ontario Statute	19	1906
(Sec. 39).		

INTERNATIONAL TRANSIT COMPANY:
Incorporated by Letters Patent, 22nd May, 1888, under R.S.O., Cap. 157, 1897.

Ontario Statute	99	1903

INTERNATIONAL RAILWAY COMPANY:
(Formerly Niagara Falls Park and River Ry. Co.; also Buffalo Ry. Co.).

Ontario Statute	96	1892
Act to incorporate.		
Dominion Statute	54	1900
Ontario Statute	86	1901
Ontario Statute (Sec. 30)	12	1902
Dominion Statute	43	1902

KINGSTON STREET RAILWAY COMPANY:

Ontario Statute	74	1875-76
Act to incorporate.		
Ontario Statute	91	1893
To change name.		
Ontario Statute	79	1904
See Kingston, Portsmouth and Cataraqui Street Railway Co.		

KINGSTON, PORTSMOUTH AND CATARAQUI STREET RAILWAY CO.:

Ontario Statute	74	1875-76
Act to incorporate.		
Ontario Statute	91	1893
Ontario Statute	105	1895
Ontario Statute	61	1898
Ontario Statute	79	1904
Ontario Statute	111	1906

LONDON STREET RAILWAY:

Ontario Statute	99	1873
Act to incorporate.		
Ontario Statute	79	1889
Ontario Statute	89	1894
Ontario Statute	107	1895
Ontario Statute	105	1896
Ontario Statute	67	1897
Ontario Statute	97	1899
Ontario Statute	82	1902
Ontario Statute	98	1905
Ontario Statute	110	1909

METROPOLITAN RAILWAY COMPANY:

Ontario Statute	84	1877
Ontario Statute	94	1893
Ontario Statute	108	1895
Ontario Statute	92	1897
Ontario Statute (T. & Y.R.R. Co.)	66	1898
Ontario Statute	116	1900
Ontario Statute	84	1901

MOUNT MCKAY AND KAKABEKA FALLS RAILWAY COMPANY:

Ontario Statute	82	1904
Act to incorporate.		
Ontario Statute	131	1908
Ontario Statute	101	1911

NIAGARA FALLS PARK AND RIVER RAILWAY COMPANY:

See International Railway Company.

OTTAWA ELECTRIC RAILWAY COMPANY:

Formerly the Ottawa City Passenger Railway Co.

Statute of Canada		1866
Act to incorporate (29 & 30 Vict.)		
Ontario Statute	45	1868
Ontario Statute		1891
Ottawa Electric St. Ry. Co. was on 13th day of February, 1891, incorporated by Letters Patent, under the Joint Stock Company's Act and Street Railway Act.		
Dominion Statute	53	1892
Declared to be a work for the general advantage of Canada, but the operation of so much of the Company's line of railway as may be within the Province of Ontario by any new or additional powers conferred by this Act, shall be subject to the Statutes of Ontario in force from time to time in relation to street railways.		
Ontario Statute	76	1894
Act to confirm an agreement between the City of Ottawa and the O.C.P. Ry. Co., and the O.E. St. Ry. Co.		
Dominion Statute	86	1894
Act to confirm an agreement between the O.C.P. Ry. Co., and the O.E. St. Ry. Co., and an agreement between the said companies and the Corporation of the City of Ottawa, and to unite said companies under the name of "The Ottawa Electric Railway Co."		

Dominion Statute 82 1899
Dominion Statute 171 1903
Dominion Statute 140 1905
Ontario Statute 98 1911
Act respecting the City of Ottawa.
See Metropolitan Railway of Ottawa, 28th August, 1891, Ontario Letters Patent.

PORT ARTHUR AND FORT WILLIAM RAILWAY COMPANY:
Ontario Statute 78-93 1891
Act to incorporate.
Ontario Statute 82 1892
Ontario Statute (Sec. 20) 70 1892
Ontario Statute 78 1893
An Act respecting Port Arthur.
Ontario Statute 73 1895
An Act respecting Port Arthur.
Ontario Statute 73 1899
An Act respecting Port Arthur.
Ontario Statute 65 1901
An Act respecting Port Arthur.
Ontario Statute 76 1903
An Act respecting Port Arthur.
Ontario Statute 80 1908
Re Arbitration of part of line in Fort William.
Ontario Statute 106 1909
City of Fort William. ..
Ontario Statute 118 1909
City of Port Arthur.
Ontario Statute 88 1911
City of Fort William.

PETERBOROUGH RADIAL RAILWAY COMPANY:
Ontario Statute 91 1902
Act to incorporate.
Ontario Statute 116 1906
Ontario Statute 142 1909

PORT DALHOUSIE, ST. CATHARINES, AND THOROLD ELECTRIC STREET RAILWAY CO.:
Ontario Statute 1893
Incorporated by Letters Patent, 28th June, 1893.
Ontario Statute 93 1902
NOTE.—May lease or sell to the Niagara, St. Catharines, and Toronto Ry. Co., but subject to the rights, position, and power of any municipal corporation under any statute, by-law, agreement, or otherwise, and the same may be enforced as against the N. St. C. and T. Ry. Co., in the same manner, and to the same extent, and as fully as the same could be enforced, as against the P. D. St. C. & T. E. Ry. Co.
Operated by the Niagara, St. Catharines, and Toronto Railway Company.

SANDWICH, WINDSOR, AND AMHERSTBURG RAILWAY COMPANY:
(Formerly Sandwich and Windsor Passenger Ry. Co.).
Ontario Statute 64 1871-2
Act to incorporate.
Ontario Statute 64 1874
Act to extend time for completion.
Ontario Statute 80 1887
Act to amend Act incorporating.
Ontario Statute 94 1901
Act to amend Acts respecting.
Ontario Statute 97 1893
Ontario Statute 62 1898
Ontario Statute 94 1902
Transfer by S.E.E. Ry. Co.
Ontario Statute 112 1903
Act respecting the S.W. & A. Ry. and the City Railway Co., of Windsor.

The City Railway Company, of Windsor, was incorporated under the provisions of "The Street Railway Act, R.S.C., 208."

Ontario Statute	88	1904
Transfer from City Company to Sandwich Company authorized.		
Ontario Statute	39	1905
Act respecting Amherstburg.		
Ontario Statute	130	1911
Act to amend.		

SARNIA STREET RAILWAY COMPANY:

Ontario Statute	61	1874
Act to incorporate.		
Ontario Statute	95	1902
Ontario Statute	114	1903
Ontario Statute	107	1908

ST. THOMAS STREET RAILWAY COMPANY:

Ontario Statute	53	1878
Act to incorporate.		
Ontario Statute	51	1898
Act respecting St. Thomas Street Ry. Co.		
Ontario Statute	111	1903
Ontario Statute	150	1910

TEMISKAMING AND NORTHERN ONTARIO RAILWAY:

Ontario Statute	9	1902
Act to authorize construction.		
Ontario Statute	4	1903
Ontario Statute	7	1904
Ontario Statute	10	1905
Ontario Statute	14	1906
Ontario Statute	18	1907
Ontario Statute (Section 23)	33	1908
Ontario Statute	18	1909
Ontario Statute	15	1910
Ontario Statute	13	1911

TORONTO RAILWAY COMPANY:
(Formerly Toronto Street Railway Co.)

Ontario Statute	99	1892
An Act to incorporate the Toronto Railway Company, and to confirm an agreement between the Corporation of the City of Toronto and certain individuals.		
Ontario Statute	85	1893
Ontario Statute	101	1893
Ontario Statute	93	1894
Ontario Statute	81	1897
Ontario Statute	103	1900
Ontario Statute	93	1904
Ontario Statute	112	1908
Ontario Statute	119	1911

TORONTO AND MIMICO RAILWAY COMPANY:
Incorporated by Letters Patent, 14th November, 1890.

Ontario Statute	92	1904
An Act respecting the Township of Toronto and the T. & M. Ry. Co.		

TORONTO AND SCARBORO ELECTRIC RAILWAY, LIGHT AND POWER COMPANY, LIMITED:
Incorporated by Letters Patent, 18th August, 1892.

Ontario Statute	102	1893
Ontario Statute	65	1898
Ontario Statute	66	1898
Ontario Statute	93	1904
Ontario Statute	124	1906
See T. & Y. Ry. Co.		

TORONTO SUBURBAN RAILWAY COMPANY:

Ontario Statute	94	1894
Act to incorporate.		
Ontario Statute (Section 1)	103	1900
Ontario Statute	124	1900
Ontario Statute	91	1901
Ontario Statute	94	1904
Ontario Statute	148	1909
Ontario Statute	153	1910
Ontario Statute	133	1911

TORONTO AND YORK RADIAL RAILWAY COMPANY:

Ontario Statute	96	1891
Ontario Statute	98	1892
Ontario Statute	65	1898
Ontario Statute	66	1898
Ontario Statute	118	1903
Ontario Statute	124	1906
Ontario Statute	134	1911
Ontario Statute	119	1911

See Metropolitan, Toronto & Mimico Electric; also Toronto and Scarboro Electric Railway Company.

WINDSOR AND TECUMSEH ELECTRIC RAILWAY COMPANY:

Ontario Statute	96	1904
Ontario Statute	111	1905

See Ontario Traction Company Agreement.
Operated by the S. W. & A. Ry. Co.

WOODSTOCK, THAMES VALLEY AND INGERSOLL ELECTRIC RAILWAY COMPANY:

Ontario Statute	127	1900
Ontario Statute	98	1902

See Grand Valley; also Brantford Railways.

Number.	Name of Company.	Length of line.		No. of power houses.		Jurisdiction.			Incorporated.		Electric or Steam.		Remarks.
		Constructed.	Under construction.	Steam power.	Water power.	Dominion.	Provincial.	Doubtful.	Special Act.	Letters patent.	Electric.	Steam.	
1	Berlin and Waterloo	3.12		1			1			1	1		Power purchased from Berlin light commissioners.
2	Berlin and Bridgeport	3.1											Have running rights over tracks of B. & W. Ry.
3	Brantford Street	7		1			1		1		1		
4	Cornwall Street	4		1	1		1			1	1		
5	Guelph Radial	6		1			1		1		1		Owned and controlled by municipality.
6	Galt, Preston and Hespeler Leased line— Preston to Berlin	19.17		1			1			1	1		
7	Hamilton Street	22.29					1		1		1		Power supplied by Cataract Power Company.
8	Hamilton and Dundas	6.98					1		1		1		Power supplied by Cataract Power Company.
9	Hamilton, Grimsby and Beamsville	22.6		1			1		1		1		
10	Huntsville and Lake of Bays	1					1		1			1	
11	International Transit Company	3.68					1			1	1		Sault Ste. Marie rent 300 h.p. from Lake Superior Power Company.
12	Kingston, Portsmouth and Cataraqui	8		1			1		1		1		Power purchased from City of Kingston.
13	London Street	25.73		1			1		1		1		
	Metropolitan (*see* Toronto and York Radial)												
14	Midland Terminal Ry.	4							1			1	
15	Mount McKay and Kakabeka Falls Ry.	4					1		1				
16	Niagara Falls and Park River	11.914		1	1		1		1		1		Operated by International Ry. and subject to Park Commissioners.
17	Ottawa Electric	22.87			1	1	1	1	1	1	1		Jurisdiction divided.
18	Port Arthur and Fort William Electric	13.333			1		1		1		1		Owned and controlled by municipality of Pt. Arthur and Fort William.

Number.	Name of Company.	Length of line.		No. of power houses.		Jurisdiction.			Incorporated.		Electric or Steam.		Remarks.
		Constructed.	Under construction.	Steam power.	Water power.	Dominion.	Provincial.	Doubtful.	Special Act.	Letters patent.	Electric.	Steam.	
19	Peterborough Radial	5.1			2		1		1		1		Power obtained from Peterborough Hydraulic Power Company.
20	Port Dalhousie, St. Catharines and Thorold Electric Street	6.5						1					Jurisdiction divided.
21	Sarnia Street	8.25		1			1				1		Power hired.
22	Sandwich, Windsor and Amherstburg	26.61		1			1		1		1		Operates Windsor & Tecumseh El. Ry.
23	St. Thomas Street	7.50		1			1		1		1		Owned and controlled by municipality.
24	Temiskaming and Northern Ontario	304.03					1		1			1	Under control of Temiskaming and Northern Ontario Railway Commission.
25	Thurlow Railway Co.	2.671	5				1	1				1	
26	Toronto Street	108.348	16	1			1		1		1		Three stations and obtains power from Niagara Falls. Mileage does not include tracks in sheds and yards.
27	Toronto and York Radial—												
	" Metropolitan Branch	52.43		2			1		1		1		A. C. station at Newmarket fed from Bond Lake
	" Mimico Branch	10					1		1		1		Power hired.
	" Scarboro Branch	10					1		1		1		Power hired.
28	Toronto Suburban	9.84		1			1		1		1		
29	Windsor and Tecumseh	9.45					1		1		1		Leased and operated by the Sandwich, Windsor and Amherstburg.
30	Woodstock, Thames Valley and Ingersoll	11.50		1			1		1		1		
	Total mileage	762.016	21										

INDEX TO RAILWAY LEGISLATION.

List 2.

The following index has been made with the object of continuing in chronological order all the legislation passed by both the Dominion and Provincial Government since 1867, affecting railways situate wholly or partially within the Province of Ontario.

"List No. 2" was commenced on page 323 of our Third Annual Report. This addition will complete the index up to the year 1911, inclusive:

	Cap.	Year.
Abitibi and Hudson Bay Railway Company:		
Dominion Statute	38	1909
Act respecting.		
Algoma Central Railway Company:		
Dominion Statute	50	1899
Act to incorporate.		
Declared to be a work for the general advantage of Canada.		
Algoma Central and Hudson Bay Railway Company:		
Dominion Statute	40	1909
Act respecting.		
Ontario Statute	70	1909
Act respecting.		
Dominion Statute	51	1910
Section 30.		
Dominion Statute	65	1910
Act respecting.		
Ontario Statute	17	1911
Section 16 and 17 and 18.		
Dominion Statute	34	1911
Act respecting.		
Arnprior and Pontiac Railway Company:		
Dominion Statute	44	1909
Act to incorporate.		
Bay of Quinte Railway Company:		
Dominion Statute	67	1910
Act respecting.		
Dominion Statute	39	1911
Act respecting.		
Belleville Radial Railway Company:		
Ontario Statute	129	1909
Act to incorporate.		
Ontario Statute	122	1911
Act respecting.		
Bracebridge and Trading Lake Railway Company:		
Ontario Statute	26	1910
Act to incorporate.		
Section 2.		
Dominion Statute	51	1910
Section 31.		
Ontario Statute	17	1911
Section 28 (2).		
Brockville, Westport and Northwestern Railway Company:		
Dominion Statute	55	1909
Act respecting.		
Dominion Statute	47	1911
Act respecting.		

BRUCE MINES AND ALGOMA RAILWAY COMPANY:
Ontario Statute 69 1909
Sec. 1 (*a*), Sec. 2 (*a*), Sec. 4 (*b*).
Ontario Statute 139 1910
Act to amend Act respecting.

BUFFALO AND FORT ERIE FERRY AND RAILWAY COMPANY:
Ontario Statute 138 1910
Act to consolidate and amend Acts incorporating.

BUFFALO, NIAGARA AND TORONTO RAILWAY:
Dominion Statute 49 1911
Act respecting.

CAMPBELLFORD, LAKE ONTARIO AND WESTERN RAILWAY COMPANY:
Dominion Statute 90 1908
Act respecting.
Dominion Statute 78 1910
Act respecting.
Dominion Statute 51 1911
Act respecting.

CANADA CENTRAL RAILWAY COMPANY:
Ontario Statute 130 1909
Act respecting.

CANADA AND MICHIGAN TUNNEL COMPANY:
Dominion Statute 93 1888
Act to incorporate.

CANADIAN NORTHERN RAILWAY COMPANY:
Dominion Statute 92 1908
Act respecting.
Dominion Statute 6 1911
Act respecting aid Vol. (1).

CANADIAN NORTHERN ONTARIO RAILWAY COMPANY:
Dominion Statute 93 1908
Act respecting.
Dominion Statute 63 1909
Act respecting.
Ontario Statute 71 1909
Act respecting.
Dominion Statute 79 1910
Act respecting.
Dominion Statute 6 1911
Act respecting aid Vol. (1).
Dominion Statute 57 1911
Act respecting.

CANADIAN NORTHERN QUEBEC RAILWAY COMPANY:
Dominion Statute 94 1908
Act respecting.
Dominion Statute 64 1909
Act respecting.
Dominion Statute 51 1910
Section 33.
Dominion Statute 6 1911
Act respecting aid Vol. (1).

CANADIAN PACIFIC RAILWAY COMPANY:
Ontario Statute 132 1910
See Act respecting Township of Tay.

CANADIAN PACIFIC RAILWAY COMPANY AND THE GRAND TRUNK PACIFIC RAILWAY COMPANY AT FORT WILLIAM:
Dominion Statute 66 1909
Act respecting.

CENTRAL RAILWAY COMPANY OF CANADA:
Dominion Statute 72 1909
Act respecting.

CENTRAL ONTARIO RAILWAY COMPANY:
Ontario Statute 69 1909
Sec. 1 (*b*), Sec. 4 (*c*).
Dominion Statute 84 1910
Act respecting.
Ontario Statute 17 1911
Section 65 (*c*).

CHATHAM, WALLACEBURG AND LAKE ERIE RAILWAY COMPANY:
Ontario Statute 100 1909
City of Chatham.
Dominion Statute 65 1911
Act respecting.

COBALT RANGE RAILWAY COMPANY:
Dominion Statute 73 1909
Act respecting.

COBOURG, PORT HOPE AND HAVELOCK ELECTRIC RAILWAY COMPANY:
Ontario Statute 131 1909
Act to incorporate.

COBOURG RADIAL RAILWAY COMPANY:
Ontario Statute 132 1909
Act to incorporate.

COLLINGWOOD SOUTHERN RAILWAY COMPANY:
Dominion Statute 74 1909
Act respecting.
Declared to be a work for the general advantage of Canada.
Dominion Statute 66 1911
Act respecting.

DUNNVILLE, WELLANDPORT AND BEAMSVILLE ELECTRIC RAILWAY COMPANY:
Ontario Statute 123 1908
Ontario Statute 133 1909
Act respecting.
Ontario Statute 140 1910
Act respecting.
Ontario Statute 123 1911
Act respecting.

EASTERN ONTARIO ELECTRIC RAILWAY COMPANY:
Ontario Statute 134 1909
Act to incorporate.

ERIE, LONDON AND TILLSONBURG RAILWAY COMPANY:
Dominion Statute 106 1908
Act respecting.
Dominion Statute 51 1910
Cap. 37.
Dominion Statute 96 1910
Act respecting.

ESSEX TERMINAL RAILWAY COMPANY:
Dominion Statute 98 1910
Act respecting.

FORT ERIE AND BUFFALO BRIDGE COMPANY:
Dominion Statute 83 1909
Act to incorporate.
Declared to be a work for the general advantage of Canada

FORT WILLIAM TERMINAL RAILWAY AND BRIDGE COMPANY:
Dominion Statute 109 1908
Act respecting.

GEORGIAN BAY AND SEABOARD RAILWAY COMPANY:
Ontario Statute 132 1910
See Act respecting Township of Tay.
Dominion Statute 77 1911
Act respecting.

GRAND TRUNK RAILWAY COMPANY OF CANADA:
Dominion Statute 87 1909
Act respecting.
Dominion Statute 104 1910
Act respecting.
Ontario Statute 131 1910
Act to confirm an agreement between City of Stratford and Grand Trunk Railway Company.
Ontario Statute 133 1910
Act to confirm an agreement made between the Township of Tay and Grand Trunk Railway Company.

GRAND TRUNK, GEORGIAN BAY AND LAKE ERIE RAILWAY COMPANY:
Ontario Statute 99 1911
Act respecting the Town of Owen Sound.

GRAND TRUNK PACIFIC RAILWAY COMPANY:
Dominion Statute 19 1909
Act to authorize a loan to the Grand Trunk Pacific Railway Company.
Dominion Statute 66 1909
Act respecting.
Dominion Statute 84 1909
Act respecting. (Lake Superior Branch.)
Dominion Statute 115 1908
Act respecting. (Branch Lines Company.)

GRAND VALLEY RAILWAY COMPANY:
Ontario Statute 84 1911
Act respecting the City of Brantford.

GUELPH AND GODERICH RAILWAY COMPANY:
Dominion Statute 90 1909
Act respecting.
Dominion Statute 87 1911
Act respecting.

GUELPH JUNCTION RAILWAY COMPANY:
Dominion Statute 107 1910
Act respecting.
Ontario Statute 115 1910
See Act respecting City of Guelph.

GUELPH RADIAL RAILWAY:
Ontario Statute 115 1910
See Act respecting City of Guelph.
Ontario Statute 134 1911
Act respecting.
Ontario Statute 90 1911
Act respecting the City of Guelph.

HAMILTON RADIAL ELECTRIC RAILWAY COMPANY:
Dominion Statute 117 1908
Act respecting.

HAMILTON, WATERLOO AND GUELPH RAILWAY COMPANY:
Dominion Statute 118 1908
Act respecting.
Dominion Statute 108 1910
Act respecting.
Dominion Statute 89 1911
Act respecting.

HURONTARIO RAILWAY COMPANY:
Ontario Statute 141 1910
Act to incorporate.

HURON AND ONTARIO RAILWAY COMPANY:
Dominion Statute 92 1909
Act respecting.
Dominion Statute 94 1911
Act respecting.

IMPERIAL TRACTION COMPANY:
Dominion Statute 96 1911
Act to incorporate.
Declared to be a work for the general advantage of Canada.

INTERNATIONAL RAILWAY COMPANY AND INTERNATIONAL TRACTION RAILWAYS:
Ontario Statute 125 1911
Act respecting.
Dominion Statute 98 1911
Act respecting.

IRON RANGE RAILWAY COMPANY:
Ontario Statute 142 1910
Act respecting.

JAMES BAY AND EASTERN RAILWAY COMPANY:
Dominion Statute 113 1910
Act to incorporate.

KINGSTON, SMITH'S FALLS AND OTTAWA RAILWAY COMPANY:
Dominion Statute 51 1910
Section 39.
Dominion Statute 116 1910
Act respecting.

LAC SEUL, RAT PORTAGE AND KEEWATIN RAILWAY COMPANY:
Ontario Statute 69 1909
Sec. 2 (*b*), Sec. 4 (*a*).
Dominion Statute 51 1910
Section 32.
Ontario Statute 143 1910
Act respecting.
Ontario Statute 17 1911
Section 65 (*a*).

LAKE ERIE AND NORTHERN RAILWAY COMPANY:
Dominion Statute 106 1911
Act to incorporate.
Declared to be a work for the general advantage of Canada.

LAKE SUPERIOR AND NORTHERN RAILWAY AND TRANSPORTATION COMPANY:
Ontario Statute 135 1909
Act to incorporate.

LINDSAY, BOBCAYGEON AND PONTYPOOL RAILWAY COMPANY:
Dominion Statute 123 1908
Act respecting.

LONDON AND LAKE ERIE RAILWAY AND TRANSPORTATION COMPANY:
(Formerly South-Western Traction Company.)
Dominion Statute 120 1910
Act to incorporate.
Declared to be a work for the general advantage of Canada.

LONDON AND NORTHWESTERN RAILWAY COMPANY:
Dominion Statute 100 1909
Act to incorporate.
Declared to be a work for the general advantage of Canada.
Dominion Statute 108 1911
Act respecting.

LONDON STREET RAILWAY COMPANY:
Ontario Statute 110 1909
City of London.

MANITOULIN AND NORTH SHORE RAILWAY COMPANY:
Dominion Statute 127 1908
Act respecting.
Ontario Statute 72 1909
Act respecting.
Dominion Statute 51 1910
Section 29.
Dominion Statute 122 1910
Act respecting.
Ontario Statute 17 1911
Section 15 (*d*) (2).
Dominion Statute 111 1911
Act respecting changing its name to "The Algoma Eastern Railway Company."

MONARCH RAILWAY COMPANY:
Ontario Statute 144 1910
Act to incorporate.

MORRISBURG ELECTRIC RAILWAY COMPANY:
Ontario Statute 136 1909
Act to incorporate.
Ontario Statute 145 1910
Act respecting.

MORRISBURG FERRY AND DOCK COMPANY:
Dominion Statute 132 1910
Act to incorporate.

MOUNT MCKAY AND KAKABEKA FALLS RAILWAY COMPANY:
Ontario Statute 101 1911
Act respecting the Municipality of the Township of Paipoonge.

NEW YORK, ST. LAWRENCE AND OTTAWA RAILWAY COMPANY:
Dominion Statute 67 1888
Act to incorporate.

NIAGARA FALLS, WELLAND AND DUNNVILLE ELECTRIC RAILWAY COMPANY:
Ontario Statute 146 1910
Act to incorporate.

NIAGARA FRONTIER ELECTRIC RAILWAY COMPANY:
Ontario Statute 126 1911
Act respecting.

NIAGARA PENINSULAR RAILWAY COMPANY:
Ontario Statute 137 1909
Act respecting.

NIAGARA, ST. CATHARINES AND TORONTO RAILWAY COMPANY:
Dominion Statute 134 1908
Act respecting.

NIAGARA, WELLAND AND LAKE ERIE RAILWAY COMPANY:
Dominion Statute 119 1911
Act to incorporate.
Declared to be a work for the general advantage of Canada.

NICKEL RANGE RAILWAY COMPANY:
Ontario Statute 147 1910
Act to incorporate.

NIPIGON RAILWAY COMPANY:
Dominion Statute 51 1910
Section 34.

NIPISSING CENTRAL RAILWAY COMPANY:
Dominion Statute 135 1908
Act respecting.

NORTH MIDLAND RAILWAY COMPANY:
Ontario Statute 148 1910
Act respecting.

NORTHERN QUEBEC COLONIZATION RAILWAY COMPANY:
Dominion Statute 138 1910
Act to incorporate.

ONTARIO AND ABITIBI RAILWAY COMPANY:
Dominion Statute 120 1911
Act to incorporate.

ONTARIO, HUDSON'S BAY AND WESTERN RAILWAY COMPANY:
Dominion Statute 116 1909
Act respecting.
Ontario Statute 26 1910
Section 20.
Dominion Statute 121 1911
Act respecting.
Ontario Statute 17 1911
Sections 17 and 18.

ONTARIO INTERURBAN RAILWAY COMPANY:
Ontario Statute 138 1909
Act respecting.

ONTARIO-MICHIGAN RAILWAY COMPANY:
Dominion Statute 122 1911
Act to incorporate.
Declared to be a work for the general advantage of Canada.

ONTARIO, NORTHERN AND TEMAGAMI RAILWAY COMPANY:
Dominion Statute 51 1910
Section 35.
Dominion Statute 123 1911
Act respecting

ONTARIO AND OTTAWA RAILWAY COMPANY:
Dominion Statute 139 1910
Act to incorporate.

ONTARIO, SAULT STE. MARIE RAILWAY COMPANY:
Ontario Statute 17 1911
Section 64.

ONTARIO WEST SHORE ELECTRIC RAILWAY COMPANY:
Ontario Statute 139 1909
Act respecting.

OSHAWA RAILWAY COMPANY:
Ontario Statute 97 1911
Act respecting the Town of Oshawa.

OTTAWA, BROCKVILLE AND ST. LAWRENCE RAILWAY COMPANY:
Dominion Statute 140 1908
Act respecting.
Dominion Statute 140 1910
Act respecting.

OTTAWA ELECTRIC RAILWAY COMPANY:
Ontario Statute 98 1911
Act respecting the City of Ottawa.

OTTAWA AND GATINEAU RAILWAY COMPANY:
and to change its name to the Ottawa Northern and Western Railway Company.

Dominion Statute 87 1894
Dominion Statute 31 1896
Dominion Statute 58 1897
Dominion Statute 83 1899
Dominion Statute 80 1901

Ottawa, Montreal and Eastern Railway Company:
Dominion Statute 141 1910
Act to incorporate.

Ottawa, Northern and Western Railway Company:
Dominion Statute 80 1901
Dominion Statute 89 1902
Dominion Statute 118 1909
Act respecting.
Dominion Statute 143 1910
Act respecting.
Dominion Statute 125 1911
Act respecting.

Ottawa, Rideau Valley and Brockville Railway Company:
Dominion Statute 144 1910
Act to incorporate.

Ottawa and St. Lawrence Electric Railway Company:
Ontario Statute 140 1909
Act to incorporate.
Ontario Statute 128 1911
Act respecting.

Ottawa, Smith's Falls and Kingston Railway Company:
Ontario Statute 127 1911
Act to incorporate.

Owen Sound and Meaford Railway Company:
Dominion Statute 141 1908
Act respecting.

Pacific and Atlantic Railway Company:
Dominion Statute 142 1908
Act respecting.
Dominion Statute 145 1910
Act respecting.

People's Railway Company:
Ontario Statute 141 1909
Act to incorporate.
Ontario Statute 149 1910
Act respecting.

Ontario Statute 129 1911
Act respecting.
Ontario Statute 90 1911
Act respecting the City of Guelph.
Dominion Statute 129 1911
Act respecting.
Declared to be a work for the general advantage of Canada.

Peterboro Radial Railway Company:
Ontario Statute 142 1909
Act respecting.

Pontiac Central Railway Company:
Dominion Statute 130 1911
Act respecting.

Pontiac and Renfrew Railway Company:
Dominion Statute 66 1888
Act to incorporate.

PORT ARTHUR AND FORT WILLIAM RAILWAY:
Ontario Statute 106 1909
City of Fort William.
Ontario Statute 118 1909
City of Port Arthur.
Ontario Statute 88 1911
Act respecting the City of Fort William.

QUEBEC ORIENTAL RAILWAY COMPANY:
Dominion Statute 126 1909
Act respecting.

QUINZE AND BLANCHE RIVER RAILWAY COMPANY:
Dominion Statute 127 1909
Act respecting.

RAINY RIVER RADIAL RAILWAY COMPANY:
Dominion Statute 152 1910
Act to incorporate.

ST. MARY'S AND WESTERN ONTARIO RAILWAY COMPANY:
Dominion Statute 136 1909
Act respecting
Dominion Statute 51 1910
Section 28.

ST. THOMAS STREET RAILWAY COMPANY:
Ontario Statute 150 1910
Act respecting.

SANDWICH, WINDSOR AND AMHERSTBURG RAILWAY:
Ontario Statute 130 1911
Act to amend.

SAULT STE. MARIE AND ST. JOSEPH ISLAND RAILWAY COMPANY:
Ontario Statute 143 1909
Act to incorporate.

SIMCOE RAILWAY AND POWER COMPANY:
Ontario Statute 145 1909
Act to incorporate.
Ontario Statute 151 1910
Act respecting.

SIMCOE, GREY AND BRUCE RAILWAY COMPANY:
Dominion Statute 140 1911
Act to incorporate.
Declared to be a work for the general advantage of Canada.

SOUTH ONTARIO PACIFIC RAILWAY COMPANY:
Dominion Statute 157 1908
Act respecting.
Dominion Statute 163 1910
Act respecting.
Dominion Statute 142 1911
Act respecting.

SOUTH WESTERN TRACTION COMPANY:
Ontario Statute 146 1909
Act respecting.

STRATFORD RAILWAY COMPANY:
Ontario Statute 131 1911
Act to incorporate.

STRATFORD AND ST. JOSEPH RADIAL RAILWAY:
Ontario Statute 144 1909
Act to extend time to construct railway.

SUPERIOR AND WESTERN ONTARIO RAILWAY COMPANY:
Ontario Statute 69 1909
Sec. 2 (*c*), Sec. 4 (*b*).
Dominion Statute 139 1909
Act to incorporate.
Declared to be a work for the general advantage of Canada.

TEMISKAMING AND NORTHERN ONTARIO RAILWAY:
Ontario Statute 18 1909
Act to amend.
Ontario Statute 15 1910
Act to amend.
Ontario Statute 13 1911
Act respecting.

THESSALON AND NORTHERN RAILWAY COMPANY:
Dominion Statute 140 1909
Act respecting.
Declared to be a work for the general advantage of Canada.

TILLSONBURG AND SOUTHERN COUNTIES RADIAL RAILWAY COMPANY:
Ontario Statute 147 1909
Act to incorporate.
Ontario Statute 26 1910
Act to incorporate.
Section 6.

TORONTO RAILWAY COMPANY:
Ontario Statute 119 1911
Act respecting the City of Toronto..

TORONTO EASTERN RAILWAY COMPANY:
Dominion Statute 167 1910
Act to incorporate.

TORONTO, HALIBURTON AND PEMBROKE RAILWAY COMPANY:
Ontario Statute 152 1910
Act to incorporate.

TORONTO INTERURBAN RAILWAY COMPANY:
Ontario Statute 132 1911
Act to incorporate.

TORONTO, LINDSAY AND PEMBROKE RAILWAY COMPANY:
Dominion Statute 51 1910
Section 38.
Ontario Statute 26 1910
Section 37.

TORONTO, NIAGARA AND WESTERN RAILWAY COMPANY:
Dominion Statute 143 1909
Act respecting.

TORONTO AND RICHMOND HILL STREET RAILWAY COMPANY:
Ontario Statute 94 1895
See Act respecting Township of York.

TORONTO AND SCARBORO ELECTRIC RAILWAY, LIGHT AND POWER COMPANY, LIMITED:
(Incorporated by Letters Patent, 18th August, 1892.)
Ontario Statute 102 1893
Ontario Statute 65 1898
Ontario Statute 66 1898
Ontario Statute 93 1904
Respecting Toronto Railway Company.
Ontario Statute 124 1906
See T. and Y. Railway Company.

TORONTO SUBURBAN RAILWAY COMPANY:
Ontario Statute 148 1909

Act respecting.
Ontario Statute 153 1910
Act respecting.
Ontario Statute 133 1911
Act respecting.

TORONTO AND YORK RADIAL RAILWAY COMPANY:
Ontario Statute 134 1911
Act respecting.
Ontario Statute 119 1911
Act respecting the City of Toronto.

TRANS-CANADA RAILWAY COMPANY:
Dominion Statute 164 1908
Act respecting.

WAHNAPITAW RAILWAY COMPANY:
Ontario Statute 154 1910
Act to incorporate.

WALKERTON AND LUCKNOW RAILWAY COMPANY:
Dominion Statute 149 1909
Act respecting.
Dominion Statute 174 1910
Act respecting.
Ontario Statute 113 1910
See Act respecting Town of Durham.
Dominion Statute 147 1911
Act respecting.

WEST ONTARIO PACIFIC RAILWAY COMPANY:
Dominion Statute 176 1910
Act respecting.

WESTERN CENTRAL RAILWAY COMPANY:
Ontario Statute 155 1910
Act respecting.
Dominion Statute 150 1911
Act respecting.

WESTERN ONTARIO RAILWAY COMPANY:
Dominion Statute 69 1888
Act to incorporate.

WINDSOR, CHATHAM AND LONDON RAILWAY COMPANY:
Dominion Statute 171 1908
Act respecting.

WINDSOR, ESSEX AND LAKE SHORE RAPID RAILWAY COMPANY:
Dominion Statute 152 1909
Act respecting.

WINNIPEG AND ATLANTIC RAILWAY COMPANY:
Dominion Statute 62 1892
Act to incorporate.

ZENITH MINING AND RAILWAY COMPANY:
Dominion Statute 92 1899
Act to incorporate.
Declared to be a work for the general advantage of Canada.

The following tables A and B have been compiled for the purpose of showing the various subsidies voted since July 1, 1867, by the Province of Ontario to Railways constructed wholly or partly within the Province.

Table A sets forth the subsidies voted by the Province of Ontario to the various Railways therein mentioned. These subsidies, however, have not all been paid in cash. In some cases the Railways have received the whole amount in cash, others have received the whole amount in certificates of the Province of Ontario, bearing interest at the rate of 3½ per cent. per annum, while others have received payment partly in cash and partly in certificates of Ontario with interest at 3½ per cent.

Table B shows what cash the Railways have received, the amounts which the Province has paid in respect of the certificates, and the amount of outstanding certificates. The amounts set forth in the total column in Table B represent the amounts paid to Railway Companies respectively, together with the amount of the unredeemed certificates issued to such Railways. The difference between the gross sum of the subsidies voted and the total amount paid by the Government to Railways and the unpaid liability due by the Government in respect of such subsidies is made up of the interest at the rate of 3½ per cent. for the term of years over which the payment of the Government is distributed.

TABLE A.

AID TO RAILWAYS FROM CONFEDERATION TO OCTOBER 31ST, 1911.

Name of Railway.	Miles.	Rate.	Subsidy Voted.
		$ c.	$ c.
Bay of Quinte	28.45	3,000 00	85,350 00
Belleville & North Hastings	22.	3,000 00	66,000 00
Brantford, Norfolk & Port Burwell	33.27	2,000 00	66,540 00
Bruce Mines & Algoma	17.	3,000 00	51,000 00
Canada Central	20.029	2,650 00	53,000 00
do	20.	2,650 00	53,000 00
do	7.531	2,650 00	19,957 15
Canada Southern	62.901	2,000 00	125,802 00
Central Counties	31.	2,000 00	62,000 00
do	7.	1,200 00	8,400 00
Central Ontario	50.500	3,000 00	151,500 00
Cobourg, Peterboro & Marmora	9.37	2,000 00	18.740 00
Credit Valley	153.061	3,000 00	459,183 00
Canada Atlantic	65.72	4,000 00	262,880 00
Erie & Huron	40.556	2,000 00	81,112 00
Grand Trunk, Georgian Bay & Lake Erie	79.3	2,000 00	158,600 00
Grand Junction	45.86	3,000 00	137,580 00
do	20.	2,000 00	40,000 00
G. T. R. Assignee of Magnetawan River Rwy	1.86	cash	10,000 00
Grand Trunk Pacific	188.16	2,000 00	376,320 00
Hamilton & North Western	95.464	2,500 00	238,660 00
do do	48.052	3,000 00	144,156 00
Hamilton & Lake Erie	33.48	2,000 00	66,960 00
Huntsville & Lake of Bays	1 50	cash	10,000 00
Irondale, Bancroft & Ottawa	44.77	3,000 00	134,310 00
James Bay	3.70	4,000 00	14,800 00
Kingston & Pembroke	20.	2,000 00	40,000 00
do	15.	2,650 00	39,750 00
do	11.58	3,250 00	37,635 00
do	13.74	7,000 00	96,180 00
do	28 42	8,000 00	237,360 00
Lake Simcoe Junction	26.50	2,000 00	53,000 00
Lindsay, Bobcaygeon & Pontypool	17.53	3,000 00	52,590 00
London, Huron & Bruce	69.146	2,000 00	138,292 00
Montreal & Ottawa	50.	2,000 00	100,000 00
Midland	20.40	2,000 00	40,800 00
do	19.60	2,250 00	44,100 00
do	14.53	4,000 00	58,120 00
North Simcoe	33.343	2,500 00	83,357 50
Northern Extension	42.72	2,000 00	85,440 00
do	27.68	4,000 00	110,720 00
Ontario & Rainy River	268.20	4,000 00	1,072,800 00
Ontario, Belmont & Northern	9.57	2,000 00	19,140 00
Ottawa, Arnprior & Parry Sound	149.43	3,000 00	448,290 00
Pembroke Southern	18.50	3,000 00	55,500 00
Prince Arthur's Landing	5.995	2,000 00	11,990 00
Prince Edward County	32.	2,500 00	80,000 00
Port Dover & Lake Huron	63.	2,000 00	126,000 00
Port Arthur, Duluth & Western	80.	3,000 00	240,000 00
Parry Sound Colonization	47.75	3,000 00	143,250 00
Stratford & Lake Huron	27.5	2,000 00	55,000 00
Toronto, Grey & Bruce	73.52	3,000 00	220,560 00
do	77.62	2,000 00	155,240 00
Toronto & Nipissing	33.439	2,000 00	66,878 00
do	12.778	3,000 00	38,334 00
Tillsonburg, Lake Erie & Pacific	19.108	2,000 00	38,216 00
Thessalon & Northern	1.929	cash	5,000 00
Victoria	33.442	4,000 00	133,768 00
do	22.310	8,000 00	178,480 00
Wellington, Grey & Bruce	120.638	2,000 00	241,276 00
Whitby, Port Perry & Lindsay	45.745	2,000 00	91,490 00
Ottawa & New York (International Bridge)	.....	cash	35,000 00
Dominion Bridge Co. (Interprovincial Bridge)	.....	cash	50,000 00
Totals	2,683.197	.....	7,619,406 65

TABLE B.

AID TO RAILWAYS UP TO 31ST OCTOBER, 1911, FROM CONFEDERATION.

Name of Railway.	Miles.	Cash Payments.	Certificates Paid.	Certificates Outstanding.	Total.
		$ c.	$ c.	$ c.	$ c.
Belleville & North Hastings	22.000		114,206 40		114,206 40
Brantford, Norfolk & Port Burwell	33 270		129,353 60		129,353 60
Bruce Mines & Algoma	17.000	1,920 00	20,926 89	70,638 71	93,485 60
Bay of Quinte	28.450		29,855 40	129,373 40	159,228 80
Canada Central	47.560	125,957 15			125,957 15
Canada Southern	62.901		244,559 20		244,559 20
Central Counties	38.000	68,747 26			68,747 26
Central Ontario	50.500	73,500 00	32,251 98	113,266 42	219,018 40
Cobourg, Peterboro and Marmora	9.370	18,740 00			18,740 00
Credit Valley	153.061	18,702 00	788,648 85		807,350 85
Canada Atlantic	65.720		454,887 60		454,887 60
Erie & Huron	40.556	1,634 47	122,200 40		123,834 87
Grand Trunk, Georgian Bay & Lake Erie	79.300	1,580 00	229,866 00		231,446 00
Grand Junction	65.860	40,000 00	238,067 60		278,067 60
Grand Trunk Ry. as Assignee of the Magnetawan Ry.	1.860	10,000 00			10,000 00
Grand Trunk Pacific	188.160		46,485 12	655,605 28	702,090 40
Hamilton & North Western	143.516		727,697 20		727,697 20
Hamilton & Lake Erie	33.480	66,960 00			66,960 00
Huntsville & Lake of Bays	1.500	10,000 00			10,000 00
Irondale, Bancroft & Ottawa	44.770		94,140 48	156,429 12	250,569 60
James Bay Railway	3.700		6,212 70	21,399 30	27,612 00
Kingston & Pembroke	88.740	213,522 50	393,423 20		606,945 70
Lindsay, Bobcaygeon & Pontypool	17.530		17,170 02	80,944 38	98,114 40
Lake Simcoe Junction Railway	26.500	53,000 00			53,000 00

London, Huron & Bruce	69.146		268,839 60		268,839 60
Montreal & Ottawa	50.000		63,430 40	123,129 60	186,560 00
Midland Railway	54.530	66,227 50	149,284 40		215,511 90
North Simcoe Railway	33.343		144,241 60		144,241 60
Northern Extension Railway	70.400	196,188 00			196,188 00
Ontario & Rainy River (Can. Northern)	268.200		513,114 70	1,488,301 30	2,001,416 00
Ontario, Belmont & Northern	9.570		13,397 10	22,328 50	35,725 60
Ottawa, Arnprior & Parry Sound	149.430		327,016 18	490,675 82	817,692 00
Pembroke Southern	18.500		33,650 76	69,890 04	103,540 80
Prince Arthur's Landing	5.995		20,747 20		20,747 20
Prince Edward County	32 000		155,520 00		155,520 00
Port Dover & Lake Huron	63.000	126,000 00			126,000 00
Port Arthur, Duluth & Western (Can. Northern)	80.000	15,571 54	227,370 00	220,374 00	463,315 54
Parry Sound Colonization	47.750		118,949 49	148,297 71	267,247 20
Stratford & Lake Huron	27.500	55,000 00			55,000 00
Toronto, Grey & Bruce	151.140	285,182 00	176,182 40		461,364 40
Toronto & Nipissing	46.217	105,212 00			105,212 00
Tillsonburg, Lake Erie & Pacific	19.108		26,714 11	44,581 09	71,295 20
Thessalon & Northern	1.929	5,000 00			5,000 00
Victoria	55.752	33,442 00	503,875 20		537,317 20
Wellington, Grey & Bruce	120.638	241,276 00			241,276 00
Whitby, Port Perry & Lindsay	45.745	40,000 00	89,790 40		129,790 40
Ottawa & New York (International Bridge)			17,956 84	47,340 76	65,297 60
Dominion Bridge Co. (Interprovincial Bridge)			24,487 05	68,796 95	93,284 00
Totals	2,683.197	1,873,362 42	6,564,520 07	3,951,372 38	12,389,254 87

NOTE.—Present value of Railway Certificates outstanding, October 31st, 1911, $2,497,561.52.

MUNICIPAL TELEPHONE UNDERTAKINGS,

Particulars to December 31st, 1910.	Fort William.	Port Arthur.	Kenora.
Date of Installation	1902	1903	1890
Miles of wire	2,461 73	Not stated	500
(a) On poles	Not stated	12½ miles of poles	500
(b) On buildings	Separately		
(c) Underground	See above	4¾ miles of cable	
Rates for service—			
Business	$30, $36 and $38	$24	$40. $35 and $50. Interurban.
Residence	$15 and $18	$12	$20 and $30. $25 Interurban party line.
No. of messages	Not stated	5,134,820	Not stated.
" per day	18,601	14,068	"
No. of circuits	2,875	2,100	300
Capital Account:			
Total assets	$159,665 16	$141,305 21	$16,840 17
Total liabilities	147,581 48	116,264 10	10,780 00
Revenue account			
Gross income	$29,517 77	$23,637 11	$7,901 00
Expenses	35,073 86	25,839 77	4,786 35
Net profit			3,114 65
Loss	$5,556 09	$2,202 66	

TELEPHONE SYSTEMS.

Information furnished relative to systems operated under "The Local Municipal Telephone Act, 1908."

Municipality.	No. of Subscribers.	Miles of Poles.	Miles of Circuit.	Cost of System.	Cost per Subscriber.	Rate of Debenture Interest.	Yearly Assessment to repay cost and interest. Per subscriber.	Yearly Assessment for operation, per subscriber.	Rate charged to non-property owners—per annum.	Non-property owners renting telephones.	Farm Telephone rates before system started. Per annum.	No. of Farm Telephones in district when system was first organized.
Brussels, Morris & Grey	700	200	.....	$40,000 00	$57 00	5%	$11 36*	.....	$10 00	35	.....	None
Tuckersmith	505	200	428	33,803 00	67 00	5%	8 37	$3 50	11 87	12	$20 00	5
Chinguacousy	412	132	.....	30,000 00	73 00	5%	9 00	3 00	.....	.....	20 00	30
Maidstone	247	50	98	11,086 00	45 00	5%	5 85	1 00	.....	.....	.....	None
Rochester	240	71	.....	9,000 00	38 00	.....	5 44	1 00	.....	.....	.....	.....
Sandwich South	219	62	312	14,235 00	65 00	5%	8 42	2 00	10 42	3	.....	None
Gosfield North	206	50	100	8,823 00	43 00	5%	5 83	2 00	.....	.....	20 00	4
Blyth	203	100	.....	19,000 00	93 00	.....	12 00*	.....	.....	.....	.....	.....
North Easthope	200	87	145	13,000 00	65 00	.....	10 50*	.....	.....	.....	.....	.....
Colchester North	173	44	70	6,800 00	40 00	5%	5 72	3 00	8 80	2	.....	1
McKillop	167	70	125	11,000 00	66 00	.....	9 72	3 50	.....	.....	.....	.....
St. Vincent	144	50	.....	8,306 00	57 00	5%	7 95	7 00	18 00	3	20 00	80‡
Medonte	140	62	.....	7,500 00	54 00	.....	8 00	.....	.....	.....	.....	.....
Colborne Township	125	40	80	5,500 00	44 00	5%	8 00†	.....	10 00	10	.....	None
Goderich Township	105	40	68	5,000 00	48 00	.....	7 95†	.....	.....	.....	.....	.....
Laird	101	34	.....	3,820 00	38 00	.....	3 22	1 00	.....	.....	.....	.....
Tay	100	41	.....	5,900 00	59 00	.....	9 00	.....	15 00	.....	.....	.....
Brooke	83	36	60	6,800 00	82 00	.....	11 35	.....	.....	.....	.....	.....

*Including cost of operation.
†For five years, plus initial cash payment of $15.00.
‡System owned by R. Agnew & Co., purchased by municipality.

LIST OF TELEPHONE SYSTEMS, THE TARIFFS OF WHICH HAVE BEEN APPROVED BY THE ONTARIO RAILWAY AND MUNICIPAL BOARD.

Name.	Post Office Address.
"A" Line Telephone Association	Richard's Landing.
Addison, Greenbush & Rocksprings Telephone Co.	Addison.
Admaston Telephone Company	Admaston Station.
Ahmic Telephone Company, Ltd.	Ahmic Harbour.
Albertville Telephone Co.	Kingsville.
Alnwick Rural Telephone Co., Ltd.	Roseneath.
Amaranth Telephone Co-operative Association	Grand Valley.
Apsley Telephone Co., Ltd.	Apsley.
Ashgrove Rural Telephone Co.	Ashgrove.
Aylmer & Mapleton Telephone Co.	Kingsmill.
Ayr Telephone Co., Ltd.	Ayr.
Barton & Binbrook Telephone Co., Ltd.	Hannon.
Bathurst & Drummond Telephone Co.	Lanark.
Belmont Telephone Co.	Belmont.
Bell Allen Telephone Co.	Owen Sound.
Bethesda & Stouffville Telephone Co., Ltd.	Gormley.
Blenheim & South Kent Telephone Co., Ltd.	Blenheim.
Bognor Telephone Co.	Bognor.
Bolton Telephone Co., Ltd.	Bolton.
Bond's Corners Telephone Co.	Woodstock.
Bowesville Mutual Telephone Association	Bowesville.
Bracebridge & Muskoka Lakes Telephone Co., Ltd.	Bracebridge.
Brougham & Gratton Telephone Co., Ltd.	Dacre.
Burgessville Telephone Co., Ltd.	Burgessville.
Burnt River Telephone Co., Ltd.	Burnt River.
Byron Telephone Co., Ltd.	Byron.
Cambray Telephone Union	Cambray.
Camden Telephone Co., Ltd.	Newburgh.
Canadian Machine Telephone Co., Ltd.	Brantford.
Canadian Machine Telephone Co., Ltd.	Peterboro.
Canadian Machine Telephone Co., Ltd.	Lindsay.
Caradoc-Ekfrid Telephone Co., Ltd.	Melburne.
Carlsruhe Telephone Association	Carlsruhe.
Central Clarke Telephone Co.	Kendal.
Central Dufferin Telephone Association	Colbeck.
Centre Thorah Telephone Association	Beaverton.
Chatsworth Rural Telephone Association	Chatsworth.
City View & Merivale Telephone Association	City View.
Conn Telephone Co., Ltd.	Egerton.
Consolidated Telephone Co., Ltd.	Caledon.
Coulson-Jarratt Telephone Association	Coulson.
Crediton Rural Telephone Association	Crediton.
Delphi, Thornbury & Clarksburg Telephone Co.	Camperdown.
Derby Telephone Association	Squire.
Dereham Telephone Co., Ltd.	Brownsville.
Desboro Telephone Association	Desboro.
Doane Telephone Association	Newmarket.
Drummond Centre Telephone Association	Drummond.
Dunsford Telephone, Light & Power Co., Ltd.	Dunsford.
Dunville Consolidated Telephone Co., Ltd.	Dunville.
Dunville Consolidated Telephone Co., Ltd.	Caledonia.
Dunwich & Dutton Telephone Co., Ltd.	Dutton.
Durham Union Telephone Association	Orono.
East Middlesex Telephone Co., Ltd.	Thorndale.
Edville & Dundonald Telephone Association	Colborne.
Eganville & Brudenell Telephone Association	Cormac.
Elgin-Chaffey's Lock Telephone Co.	Chaffey's Lock.

Name.	Post Office Address.
Elk Lake Telephone Co.	Elk Lake.
Enterprise Telephone Association	Steelton.
Erie Telephone Co., Ltd.	Selkirk.
Ernestown Rural Telephone Co., Ltd.	Odessa.
Falkirk Telephone Co.	Falkirk.
Fenella Rural Telephone Co., Ltd.	Fenella.
Fifth Side Line Telephone Association	Tenby Bay.
Fingal Telephone Co., Ltd.	Fingal.
Fordwich Rural Telephone Co., Ltd.	Fordwich.
Fourteenth of Brant Telephone Association	Chesley.
Fraser Telephone Association	Woodstock.
Gillies Hill Telephone Association	Chesley.
Glengarry Telephone Association	Lochiel.
Goderich Rural Telephone Co., Ltd.	Goderich.
Gore Mutual Telephone Association	Harrow.
Gowas & Shore Road Telephone Co.	Richard's Landing.
Greenwood Telephone Association	Steelton.
Haldimand Telephone Co., Ltd.	The Gully.
Halton Telephone Co., Ltd.	Hornby.
Hamilton Rural Telephone Co., Ltd.	Cold Springs.
Harrietsville Telephone Association, Ltd.	Harrietsville.
Harwood Rural Telephone Association	Harwood.
Hastings Telephone Co.	Gilead.
Hayden Telephone Co.	Enniskillen.
Hazledean Telephone Co., Ltd.	Hazledean.
Heckston Telephone Co., Ltd.	Heckston.
Highland Telephone Co., Ltd.	Blackbank
Hopetown Telephone Association	Hopetown.
Houghton & Bayham Telephone Co.	Fairground.
Houghton, Bayham & Tillsonburg Telephone Association	Kinglake.
Houghton & Walsingham Telephone Co.	Port Rowan.
Howick Telephone Co., Ltd.	Gorrie.
Huron Line Telephone Co.	Richard's Landing.
Hymers Telephone Co., Ltd.	Hymers.
Ingersoll Telephone Co., Ltd.	Ingersoll.
Ingleside Telephone Association	Woodstock.
Innerkip Rural Telephone Association	Innerkip.
Innisfil Telephone Association	Lefroy.
Inwood Rural Telephone Co., Ltd.	Inwood.
Johnston & Brandon Telephone Co.	Cannington.
Kashe-Sparrow Telephone Association	Sparrow Lake.
King Telephone Co., Ltd.	King.
King Township Telephone Association	Kettleby.
Lake Shore Mutual Telephone Association	Kincardine.
Lanark & Carlton Counties Telephone Co., Ltd.	Almonte.
Lanark & Ramsay Telephone Association	Innisville.
Lansdowne Rural Telephone Co., Ltd.	Lansdowne.
Lavant & Dalhousie Telephone Association	Lavant Station.
Leeds & Frontenac Telephone Association	Seeley's Bay.
Leeds & Grenville Telephone Co., Ltd.	North Augusta.
Leith & Annan Telephone Association	Annan.
Leitrim Telephone Association	Leitrim.
Lennox Telephone Co., Ltd.	Gosport.
Lucknow & Kinloss Telephone Association	Kinlough.
Lyndhurst Rural Telephone Co.	Lyndhurst.
Madawaska Telephone Association	Burnstown.
Malahide & Bayham Telephone Co., Ltd.	Bayham.
Mallorytown Independent Telephone Corporation	Mallorytown.

Name.	Post Office Address.
Manilla Northern Telephone Co.	Manilla.
Manitoulin & North Shore Telephone Co., Ltd.	Little Current.
Mapleshade Telephone Association	Woodstock.
Markham & Pickering Telephone Co., Ltd.	Whitevale.
Marysborough Telephone Co., Ltd.	Moorefield.
Marysburgh Telephone Association	Milford.
McCool-Thornloe Telephone Co.	Thornloe.
McKillop, Logan & Hibbert Telephone Co., Ltd.	Staffa.
McNab Telephone Association	White Lake.
Minto Rural Telephone Co., Ltd.	Harriston.
Molesworth Independent Telephone Co., Ltd.	Molesworth.
Monk Telephone Co., Ltd.	Carp.
Mono Mills Telephone Association	Mono Mills.
Moorsville Telephone Association	Crediton.
Mornington & Wellesley Telephone Co., Ltd.	Millbank.
Moscow Rural Telephone Co.	Moscow.
Mount Albert Telephone Co., Ltd.	Mount Albert.
Mount Carmel & Centralia Telephone Association	Centralia.
Mount Forest, Wellington & Gray Telephone Co., Ltd.	Mount Forest.
Mount Pleasant Telephone Co.	Castleton.
Nelson Telephone Co., Ltd.	Lowville.
New California Rural Telephone Association	Kingsville.
New Dundee Rural Telephone Co., Ltd.	New Dundee.
New Glasgow Telephone Co., Ltd.	Aldboro.
Niagara District Telephone Co., Ltd.	Jordan Station.
Nissouri Telephone Co., Ltd.	Lakeside.
Noisy River Telephone Co., Ltd.	Creemore.
Norfolk County Telephone Co., Ltd.	Waterford.
Norfolk & Tillsonburg Telephone Association	Mabee.
Norland Independent Telephone Association	Coboconk.
Northcote Farmers' Telephone Association	Northcote.
North Brant Telephone Association	Chesley.
North Huron Telephone Co., Ltd.	Wingham.
North Wellington Telephone Co., Ltd.	Arthur.
Oakview Telephone Co., Ltd.	Stayner.
Omemee Telephone Association	Omemee.
Ontario Telephone Company	West Lorne.
Oro Telephone Co., Ltd.	Hawkestone.
Orr-Steinhoff Telephone Association	Mickle.
Ottawa Valley Rural Telephone Co., Ltd.	Kars.
Palermo Telephone Association	Bronte.
Park Hill Rural Telephone Association	Park Hill.
Peerless Telephone Association	Woodstock.
Penhurst Telephone Association	Woodstock.
People's Telephone Co., of Forest, Ltd.	Forest.
People's Telephone & Telegraph Co., Ltd.	Maynooth.
People's Mutual Telephone Co.	Bethel.
Pine Grove Telephone Association	Orillia.
Pioneer Telephone Association	Woodstock.
Plum Hollow & Eloida Telephone Association	Athens.
Port Hope Telephone Co., Ltd.	Clark.
Princeton & Drumbo Telephone Co., Ltd.	Princeton.
Progressive Telephone Association	Sherkstone.
Queen's Line Telephone Association	Queen's Line.
Rainy River International Telephone Co., Ltd.	Rainy River.
Richards Landing Telephone Club	Richard's Landing.
Rideau View Telephone Association	Rideau View.
Rockwood-Oustic Telephone Co.	Oustic.
Romney Telephone System	Wheatley.
Ronald's Telephone System	Minesing.
Rural Telephone Co., of Kitley, Ltd.	Newbliss.

Name.	Post Office Address.
St. Mary's, Kirkton & Exeter Telephone Co., Ltd.	Kirkton.
St. Mary's-Medina Telephone Co., Ltd.	Medina.
St. Williams and Forestville Telephone Association	St. Williams.
Salem Telephone Association	Bowmanville.
Salem Telephone Co.	Allenford.
Salkeld-Andrews Telephone Association	Goderich.
Saugeen Telephone Association	Hanover.
Scarboro Independent Telephone Co., Ltd.	Highland Creek.
Schomberg Telephone Co., Ltd.	Schomberg.
Scotch Line & Micaville Telephone Association	Allan's Mills.
Sombra Township Telephone Association	Wilkesport.
Southwold & Dunwich Telephone Co., Ltd.	Iona Station.
South Bayham & Malahide Telephone Association	Lake View.
South Branch Telephone Association	Walkerton.
South Bruce Rural Telephone Co., Ltd.	Belmore.
South Elderslie Telephone Association	Chesley.
South Lambton Telephone Co., Ltd.	Sombra.
South Leeds & Pittsburg Telephone Co., Ltd.	Gananoque.
South Malahide Telephone Co., Ltd.	Aylmer.
Sprague Telephone System	Mountain View.
Springbank Telephone Co., Ltd.	Fordwich.
Spring Creek Telephone Association	Woodstock.
Stratton Telephone System	Stratton Station.
Sunderland Telephone Co., Ltd.	Sunderland.
Sunny Valley Telephone Co.	Chatsworth.
Sutton & North Gwillimbury Telephone Association	Belhaven.
Tarentorus Telephone Co., Ltd.	Sault Ste. Marie.
Temiskaming Telephone Co., Ltd.	New Liskeard.
Thamesville Telephone Co., Ltd.	Thamesville.
Thedford, Arkona & East Lambton Telephone Co., Ltd.	Thedford.
Tilbury Telephone Co., Ltd.	Tilbury.
"Ungers" Telephone System	St. Williams.
Urban & Rural Telephone Co., Ltd.	Bothwell.
Uxbridge & Scott Telephone Co., Ltd.	Uxbridge.
Violet Hill Telephone Association	Violet Hill.
Wallacetown & Lake Shore Telephone Co., Ltd.	Port Talbot.
Walsingham Centre & Port Rowan Telephone Assoc[illegible]	Walsingham Centre.
Welland County Telephone Co., Ltd.	Bridgeburg.
West Flamboro Telephone Association	West Flamboro.
West Garafraxa Telephone Co., Ltd.	Belwood.
West Williams Rural Telephone Association, Ltd.	Sable.
Wheatley Telephone Co., Ltd.	Wheatley.
Wiarton-Lake Charles Telephone Association	North Keppel.
Willowdale Rural Telephone Co., Ltd.	Hurdman's Bridge.
Woodbridge & Vaughan Telephone Co., Ltd.	Maple.
Woodville Glen Telephone Association	Woodville.
Wroxeter Rural Telephone Co., Ltd.	Wroxeter.
Yarmouth Rural Telephone Co., Ltd.	New Sarum.
Zorra Telephone Association	Embro.

SYSTEMS OPERATED UNDER INDIVIDUAL OWNERSHIP.

	P.O. Address.
Babe & White	Shelburne.
Bascom & McClintock	Uxbridge.
Beatty, Dr. A. C.	Garden Hill.
Benn, J. L.	Long Lake.
Berwick, Dr.	Grand Valley.
Blanchard, Dr. E.	Cannington.
Bowman, E.	Elmwood.
Boyd, Robert W.	South Mountain.
Boynton, Dr.	Pepperlaw.
Brewster, R. S.	Beeton.
Cadman & Milling	Napanee.
Campbell, W., & Sons	Duntroon.
Campsall, W. E.	Westport.
Chamberlain, M. H.	Wheatley.
Chauvin & Desmarais	Stoney Point.
Chevrier, A.	Chelmsford.
Conway, Thos.	Dresden.
Coulson, J.	Newcastle.
Crews, J. W.	Trenton.
Davis, H. J.	Woodstock.
Davidson, W. H.	Nanticoke.
Dobson, Alex.	Beaverton.
Edgar, R. H.	Bowling Green.
Ernst, J. P.	New Hamburg.
Ferguson, Dr. J. S.	Courtright.
Fritz & Brisco	Napanee.
Gillies, William	Tobermory.
Glaister, W.	Wellesley.
Gould & Isaacs	Fenelon Falls.
Greenwood, Dr. A. B.	Sutton West.
Halliday, M. A.	Chesley.
Hardinge, J. R.	Coe Hill.
Hartman, C. W.	Clarksburg.
Henderson, Dr.	Cannington.
Heric, V.	St. Clements.
Hyndman, H. K.	Exeter.
Knister, Dr. C. E.	Comber.
Lang & Lang	Granton.
Layman, H. C.	Kingsville.
Leonard, James	Leamington.
Lyons, A. A.	Berkeley.
Macdonald, John A.	Puslinch.
Marsh, J.	Coldstream.
McAsh, Dr. J.	Tara.
McEachern, Dr. D.	Linwood.
McFadden, T. M.	Pickering.
McGillicuddy & Zavitz	Watford.
McGuire, W. G.	Elmvale.
McKenzie, John	Keward.
McNeill, Dr. D. G.	Arva.
Meek, W. H.	Port Rowan.
Mellow, Dr. F. E.	Saintfield
Mills, G. R.	Thamesford.
Monteith-Dempsey	Stratford.
Moore, J. J.	Brooklin.
Moore, James	Listowel.
Morgan, M. C., & R. M.	Kerwood.
Morningstar, E. D.	Arkona.
Nichols, A. E.	Fergus.
Noble, C. T.	Sutton West.
Parker, Dr. F.	Milverton.
Paul & Eckert	Sebringville.
Porte, W. W.	Brighton.
Quinlan, Dr.	Stratford.
Reid, Norman	Westmeath.
Reinke, F. W.	Ancaster.
Richardson Bros.	Nipissing.
Ross, A. W.	Douglas.
Russell, Dr. A. L.	Bailieboro.
Scratch & Palmer	Kingsville.
Shaver, A. M.	Ancaster.
Shaw, C. O.	Glen Meyer.
Sutherland, J. W.	Katrine Station.
Swales, Cecil	Wiarton.
Todd & Darling	Goodwood.
Turner, Dr. H. A.	Millbrook.
Weidenhammer, Dr. F. J.	Hawkesville.
Wightman, R.	Clifford.
Zeller, E.	Zurich.

SYSTEMS OPERATING UNDER "LOCAL MUNICIPAL TELEPHONE ACT, 1908."

Township.	P.O. Address.
Blyth	Blyth.
Brooke	Alvinston.
Brussels, Morris & Grey	Brussels.
Chinguacousy	Snelgrove.
Colborne	Benmiller.
Colchester, North	Essex.
Goderich	Holmsville.
Gosfield, North	Cottam.
Hilton & Jocelyn	Carterton.
Korah	Sault Ste. Marie.
Laird	Laird.
Maidstone	Woodslee.
McKillop	Winthrop.
Medonte	Moonstone.
North Easthope	Amulree.
Oliver	Murillo.
Paipoonge	Slate River Valley.
Rochester	Woodslee.
St. Vincent	Meaford.
Sandwich, South	Maidstone.
Tay	Victoria Harbour.
Tuckersmith	Seaforth.

Systems are also being constructed, or are in process of organization under this Act, in the following townships: Alice and Frazer, Bruce, Dawn, Euphrasia, and Collingwood.

SYSTEMS OPERATED AS MUNICIPAL UNDERTAKINGS.

Fort William, Kenora, Port Arthur.

BERLIN AND BRIDGEPORT ELECTRIC STREET RAILWAY.

GENERAL BALANCE SHEET.

30th June, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	$19,697 72	
Electric line construction, including poles and wiring	3,317 34	
Total cost of railway owned		$23,015 06
Cost of Equipment:		
Cars and rolling stock and vehicles		
Cost of electric equipment of same		
Other items of equipment		
Office furniture		
Total cost of equipment		
Cost of land and buildings:		
Land necessary for operation of railway	$4,377 10	
Electric power stations, including equipment		
Other buildings necessary for operation of railway	6,377 95	
Total cost of land and buildings owned		10,755 05
Cash	167 98	
Bills and accounts receivable		
Other current assets	341 52	
Miscellaneous assets		
Material and supplies	194 31	
		703 81
Profit and loss balance deficit		
Total assets		34,473 92

Liabilities:		
Capital stock		17,400 00
Funded debt		2,400 00
Current liabilities:		
Loans and notes payable	13,719 95	
Audited voucher and accounts		
Miscellaneous current liabilities (Rest)	444 62	
		14,164 57
Accrued liabilities:		
Interest accrued and not due		
Profit and loss account balance surplus		509 35
Total liabilities		34,473 92
Capital Stock:		
Authorized by law		17,400 00
Authorized by votes of Company		17,400 00
Outstanding		17,400 00
Number of stock holders		

FUNDED DEBT.

Description Bonds.	Rate interest.	Maturity Bonds.	Amount of Bonds outstanding.	Interest paid during year.
1st mortgage	5 per cent		2,400	120

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year		145,587
Number carried per mile of main track operated		
Number of car miles run		32,000
Average number of persons employed		4
Company commenced operation		
General Exhibit—		
Gross earnings from operating	7,274 14	
Less operating expenses	5,767 05	
Gross income over operating expenses		$1,507 09
Charges upon income—		
Accrued during year		
Interest on funded debt	120 00	
Interest on unfunded debt and loans	757 14	
Taxes	120 60	
		997 74
Payment to municipalities for franchise		
Total deduction from income		
Surplus or deficit		509 35
Earnings from operation—		
From passengers carried	7,029 26	
From mails	72 00	
From advertising in cars (parcels)	43 38	
From other sources (rentals)	129 50	
Total gross earnings from operation		7,274 14
Expenses of operation—		
General Expenses:		
Salaries of officers and clerks	$823 93	
General office expenses and supplies	650 36	
Legal expenses		
Insurance	433 90	
		$1,908 19

Other General Expenses:		
Advertising	.....	
Miscellaneous general expenses	.....	
Maintenance Roadway and Buildings:		
Repair roadbed and track	.....	
Repair electric line construction	137 64	
Repair of buildings	69 86	
		207 50
Maintenance of Equipment:		
Repairs, cars and other vehicles	.....	
Repairs of electric equipment of cars	.....	
Renewals of tools and machinery	.....	
Transportation expenses:		
Cost of motive power	.....	
Wages of persons conducting transportation	1,902 80	
Removal of snow and ice	52 60	
Damages for injuries to persons and property	10 00	
		1,965 40
Other transportation expenses:		
Car service expenses and supplies	.....	
Use of car track and power	.....	1,685 96
Cleaning, oiling and sanding tracks	.....	
Total operating expenses	.....	5,767 05

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for electric power.	Number equipped.	Total passenger cars.	Equipped with fenders.	Equipped with electric heaters.	Number of motors.
Box passenger cars, 1 single passenger car leased from Town of Berlin.	.....	.....	.....	.....	.....	.....
Total	.....	.....	.....	.....	.....	.....
Cars other service—						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	3.1
Length of sidings and switches	1=3.2

ACCIDENTS TO PERSONS.

Killed and injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers						
Employees						
Other persons						
Totals						

Corporate name and address of the Company: Berlin and Bridgeport Electric Street Railway Co., Limited, Berlin, Ont.

Names and business addresses of principal officers: President, William H. Breithaupt, Berlin, Ont.; Vice-President, John S. Anthes, Berlin, Ont.; Superintendent, Jos. H. Wuest, Berlin, Ont.

Names and residence of Board of Directors: William H. Breithaupt, Berlin, Ont.; Louis J. Breithaupt, Berlin, Ont.; John S. Anthes, Berlin, Ont.; Alexander Millar, Berlin, Ont.; George M. Shirk, Bridgeport, Ont.

We hereby certify that the statements contained in foregoing report are full, just and true.

Signed, W. H. Breithaupt, Alexander Miller.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me, signed, H. J. Sims, J.P. or Com'r.

BERLIN & WATERLOO STREET RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks		
Electric line construction, including poles and wiring.		
Total cost of railway owned		
Cost of Equipment:		
Cars and other rolling stock and vehicles		
Cost of electric equipment of same		
Other items of equipment		
Office furniture		
Total cost equipment		
Cost of Land and Buildings:		
Land necessary for operation of railway		
Electric power stations, including equipment		
Other buildings necessary for operation of railway		
Total cost of land and buildings owned		$135,193 28
Cash	$449 57	
Bills and accounts receivable	2,912 33	
Other current assets		
Miscellaneous assets		
Material and supplies	8,816 81	
		$12,178 71
Profit and loss balance deficit		
Total assets		$147,371 99

Liabilities:		
Capital stock	.....	
Funded debt	.....	$114,152 84
Current Liabilities:		
Loans and notes payable	.....	
Audited voucher and accounts	.....	$15,513 80
Miscellaneous current liabilities	.....	
Accrued Liabilities:		
Interest accrued and not due	.....	$2,671 27
Depreciation account	.....	11,110 75
Profit and loss account balance surplus	.....	2,823 33
Total liabilities	.....	$147,271 99
Capital Stock:		
Authorized by law	.....	
Authorized by votes of Company	.....	
Outstanding	.....	
Number of stock holders	.....	

FUNDED DEBT.

Description of Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	774,941
Number carried per mile of main track operated	214,072
Number of car miles run	98,992
Average number of persons employed	16
Company commenced operation (acquired)	.....

General Exhibit:		
Gross earnings from operation	$38,099 07	
Less operating expenses	26,510 94	
Gross income over operating expenses		$11,588 13
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	$5,556 58	
Interest on unfunded debt and loans	636 19	
Taxes	1,014 05	
Depreciation	4,000 00	
Written off	190 54	
Total deduction from income		$11,397 36
Surplus		$190 77
Earnings from Operation:		
From passengers carried	$32,607 02	
From mails	1,178 51	
From advertising in cars	556 00	
From other sources—trackage, etc.	3,757 54	
Total gross earnings from operation		$38,099 07

Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$1,501 40	
General office expenses and supplies	627 77	
Legal expenses	24 34	
Insurance	1,660 03	
		$3,813 54
Other General Expenses:		
Advertising, uniforms, etc.	$1,074 02	
Miscellaneous general expenses	392 88	
		$1,466 90
Maintenance Roadway and Buildings:		
Repair roadbed and track	$1,740 11	
Repair electric line construction	.....	
Repair of buildings	124 71	
		$1,864 82
Maintenance of Equipment:		
Repairs, cars and other vehicles	.....	
Repairs of electric equipment of cars	$2,407 84	
Renewals of tools and machinery	1,762 53	
		$4,170 37
Transportation Expenses:		
Cost of motive power	$6,177 06	
Wages of persons conducting transportation	7,535 37	
Removal of snow and ice	257 62	
Other expenses	1,225 26	
		$15,195 31
Other Transportation Expenses:		
Car service expenses and supplies	.....	
Cleaning, oiling and sanding tracks	.....	
Total operating expenses		$26,510 94

Description of Equipment.

Description of Equipment.	Equipped for Electric Power.	Number Trailers Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	7	1	8	7	4	24
Open passenger cars	2	4	6	2	.....	.....
Total	9	5	*14	9	4	24
Cars—other service:						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows, sweeper	1	.....	.....	.....	.....	.....

* Cars and trailers.

MISCELLANEOUS EQUIPMENT.

Highway vehicles	None
Tower wagon	
Tip carts	

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	3.62
Length of sidings and switches	.38

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured	Killed.	Injured.	Killed.	Injured.
Passengers						
Employees						
Other persons						
Totals						

Corporate name and address of the Company: Berlin & Waterloo Street Railway.

Names and business addresses of principal officers: Chairman, A. L. Breithaupt, Young Street, Berlin, Ont.; Vice-Presidents, Commissioners J. J. Walters, Queen Street South, G. Lippert and R. Schnarr Berlin, Ont.; Treasurer-Secretary, V. S. McIntyre, Berlin, Ont.; General Counsel, J. A. Scellen, Berlin, Ont.; Auditor, J. M. Scully, F.C.A., Berlin, Ont.; Superintendent of Commission, E. J. Philips, Berlin, Ont.

Names and residence of Board of Directors: A. L. Breithaupt, Chairman, Berlin, Ont.; Geo. Lippert, Commissioner, Berlin, Ont.; John J. Walters, Commissioner, Berlin, Ont.; Robt. Schnarr, Commissioner, Berlin, Ont.; W. H. Schmalz, Mayor, Berlin, Ont.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Sgd.) V. S. McINTYRE.
E. J. PHILIPS.

Then personally appeared the above-named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,

(Sgd.) H. J. SIMS.
J.P. or Com'r.

CORNWALL STREET RAILWAY COMPANY.

General Balance Sheet, 30th June, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring..	.....	
Total cost of railway owned	.....	
Cost of Equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost equipment	.....	
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway..	.....	
Total cost of land and buildings owned	.....	$215,689 27
Cash	$7,286 87	
Bills and accounts receivable	1,987 18	
Other current assets	236 19	
Miscellaneous assets (deposit)	5,000 00	
Material and supplies	.....	
		$14,510 24
Profit and loss balance deficit	.....	
Total assets		$230,199 51
Liabilities:		
Capital stock (common)	$100,000 00	
Capital stock (preferred)	100,000 00	
		$200,000 00
Funded debt	.....	
Current Liabilities:		
Tickets unredeemed	$839 04	
Audited voucher and accounts	1,271 37	
Miscellaneous current liabilities	180 00	
		$2,290 41
Accrued Liabilities:		
Interest accrued and not due	.....	
Profit and loss account balance surplus	.....	$27,909 10
Total liabilities		$230,199 51
Capital Stock:		
Authorized by law	$200,000 00	
Authorized by votes of Company	200,000 00	
Outstanding	200,000 00	
Number of stock holders	.....	

Funded Debt.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	371,558
Number carried per mile of main track operated	92,889
Number of car miles run	193,244
Average number of persons employed	38
Company commenced operation	.....

General Exhibit:		
Gross earnings from operating	$29,134 21	
Less operating expenses	20,168 83	
Gross income over operating expenses		$8,965 38
Charges upon Income:		
Accrued during year	.....	
Park boat-house, etc.	$1,389 69	
Interest on unfunded debt and loans	.....	
Taxes	653 83	
Payment to municipalities for franchise	.....	
		$2,043 52
Total deduction from income	.....	
Surplus		$6,921 86
Earnings from Operation:		
From interest	$273 55	
From passengers carried	16,620 75	
From freight	9,450 84	
From advertising in cars	360 00	
From other sources—Park, $1,909.26; mail, $519.81	2,429 07	
Total gross earnings from operation		$29,134 21
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$1,267 73	
General office expenses and supplies	569 42	
Legal expenses	.....	
Insurance	453 25	
		$2,290 40
Other General Expenses:		
Advertising, park and boat house	$1,344 93	
Miscellaneous general expenses, taxes	653 83	
		$1,998 76
Maintenance Roadway and Buildings:		
Repair roadbed and track	$975 15	
Repair electric line construction	45 68	
Repair of buildings	.....	
		$1,020 83
Maintenance of Equipment:		
Repairs, cars and other vehicles	$1,859 03	
Repairs of electric equipment of cars	788 02	
Renewals of tools and machinery	477 40	
		$3,124 45
Transportation Expenses:		
Cost of motive power	$2,764 64	
Wages of persons conducting transportation	10,115 42	
Removal of snow and ice, cleaning, etc.	853 09	
Damages for injuries to persons and to property	44 76	
		$13,777 91
Other Transportation Expenses:		
Car service expenses and supplies	.....	
Cleaning, oiling and sanding tracks	.....	
Total operating expenses		$22,212 35

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	7	.....	.....	.....	.....	.....
Open passenger cars	3	.....	.....	.....	.....	.....
Total	.....	.....	.....	.....	.....	.....
Cars—other service:						
Other cars (motor) electric motors (2)	.....	.....	.....	.....	.....	.....
Snow sweeper (1)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.. ..

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	4
Length of sidings and switches	2.50
	6.50

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	.....	.....	.....	.....	None.
Employees	.....	.....	.....	.....	.....	None.
Other persons	.....	.....	.....	.....	.....	None.
Totals	.....	.....	.....	.....	.....	....

Corporate name and address of the Company: The Cornwall Street Railway, Light & Power Co., Ltd., Cornwall, Ont.

Names and business addresses of principal officers: Samuel Hamilton Ewing, President; Abner Kingman, Vice-President; Alexander Steele, Treasurer; John C. Broderick, Cashier; P. S. Ross & Sons, Auditor; Wm. Hodge, Cornwall, General Manager.

Names and residence of Board of Directors: Samuel Hamilton Ewing, 102 King Street, Montreal; Abner Kingman, 137 Board of Trade Building, Montreal; Thos. B. Macaulay, Sun Life Building, Montreal; John Redpath Dougall, *The Witness*, Montreal; John McKergow, 575 St. Paul Street, Montreal.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Sgd.) J. C. Broderick, *Cashier.*
W. Hodge, *Manager.*

Then personally appeared the above-named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,

(Sgd.) D. J. Gillies,

J.P. or Com'r.

GALT, PRESTON & HESPELER RAILWAY COMPANY.

General Balance Sheet, 30th June, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring	.....	
Total cost of railway owned	.....	
Cost of Equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost equipment	.....	
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned		$839,618 57
Cash	$16,049 68	
Bills and accounts receivable	4,852 85	
Other current assets, insurance prepaid	2,163 37	
Miscellaneous assets	13,372 39	
Material and supplies, etc.	16,922 07	
		$53,360 36
Profit and loss balance deficit	.....	
Total assets		$892,978 93
Liabilities:		
Capital stock	.....	$31,310 00
Funded debt		601,852 47
Current Liabilities:		
Loans and notes payable		
Audited voucher and accounts	$3,842 62	
Miscellaneous current liabilities, wages	5,066 33	
		$8,908 95

Accrued Liabilities:		
Freight reserves	$12,679 17	
Interest accrued and not due	937 50	
		$13,616 67
Profit and loss account balance surplus		237,290 84
Total liabilities		$892,978 93
Capital Stock:		
Authorized by law (pref.)	$100,000 00	
Authorized by law (common)		$3,500 00
Authorized by votes of Company		
Paid on 1,854 shares not issued		27,810 00
Outstanding		
		$31,310 00
Number of stock holders		6

GALT, PRESTON & HESPELER RAILWAY COMPANY.

Funded Debt.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
1st Mortgage	5%		75,000	2,813 75

Volume of Traffic, Etc.

Number of paying passengers carried during year	994,568
Number carried per mile of main track operated	51,881
Number of car miles run	275,769
Average number of persons employed	106
Company commenced operation	

General Exhibit:		
Gross earnings from operating	$162,996 11	
Less operating expenses	91,612 16	
Gross income over operating expenses		$71,383 95
Interest on deposits		345 13
		$71,729 08
Charges upon Income:		
Accrued during year		
Interest on funded debt	$3,751 25	
Interest on unfunded debt and loans		
Taxes	2,426 14	
Payments to municipalities for franchise		
Total deduction from income		$6,177 39
Surplus		$65,551 69
Earnings from Operation:		
From passengers carried	$76,013 88	
From mails	1,875 22	
From freight	77,561 05	
From sale of power	633 47	
From other sources, express, baggage, etc.	6,912 49	
Total gross earnings from operation		$162,996 11

Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$11,802 05	
General office expenses and supplies	2,136 83	
Legal expenses	26 99	
Insurance	.....	
		$13,965 87
Other General Expenses:		
Storage battery	$5,319 94	
Miscellaneous general expenses	2,909 30	
		$8,229 24
Maintenance Roadway and Buildings:		
Repair roadbed and track	$11,518 46	
Repair electric line construction	1,486 88	
Repair of buildings	.....	
		$13,005 34
Maintenance of Equipment:		
Repairs, cars and other vehicles	$523 10	
Repairs of electric equipment of cars	3,425 60	
Renewals of equipment	1.577 58	
		$5,526 28
Transportation Expenses:		
Cost of motive power	$20,329 04	
Wages of persons conducting transportation	24,896 17	
Removal of snow and ice	1,386 89.	
Damages for injuries to persons and to property	107 00	
		$46,719 10
Other Transportation Expenses:		
Trackage over other railways	$4,000 00	
Cleaning, oiling and sanding tracks	166 33	
		$4,166 33
Total operating expenses		$91,612 16

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	9	.....	.. ...	.....	7	
Open passenger cars	4	.....	.. ...	.....	2	stoves
Total	13	.....	.....	.....	.....	.....
Cars—other service:						
Other cars (motor) baggage (2) cattle (3).	.....	.....	.....	.....	.....	.....
Snow plows (3) sweeps (2) tool (2).....	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	None.
Tower wagon	None.
Tip carts	None.

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	1,917
Length of sidings and switches	725
	2,642

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	8	.....	.....	.....	8
Employees	.....	.....	.....	3	.....	3
Other persons	.....	.....	4	2	4	2
Totals	.....	8	4	5	4	13

Corporate name and address of the Company: Galt, Preston & Hespeler Street Railway Company, Limited, Galt, Ont.

Names and business addresses of principal officers: President, Martin N. Todd, Galt; Vice-President, George D. Forbes, Hespeler; Treasurer, Wm. H. Lutz, Galt; Clerk of Coporation, Wm. H. Lutz, Galt; General Counsel, C. R. Hanning, Preston; Auditors, George Crusten and J. M. Irwin, Galt; General Manager, Martin N. Todd, Galt; Superintendent, M. Kirkwood. Address correspondence to Wm. H. Lutz, Secretary-Treasurer, Galt.

Names and residence of Board of Directors: Martin N. Todd, Galt; George D. Forbes, Hespeler; Frederick Clan, Preston; James Osborne, Toronto; Hugh McCulloch, Galt.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Sgd.) W. H. LUTZ.
MARTIN TODD.

Then personally appeared the above-named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,

(Sgd.) D. SPIREL,
J.P. or Com'r.

GRAND VALLEY RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:

Cost of Railway:

Roadbed and tracks	.....
Electric line construction, including poles and wiring.	.....
Total cost of railway owned	.....

Cost of equipment:		
Cars and other rolling stock and vehicles	.....	.....
Cost of electric equipment of same	.....	.....
Other items of equipment	.....	.....
Office furniture	.....	.....
Total cost equipment	.....	.....
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	.....
Electric power stations, including equipment	.....	.....
Other buildings necessary for operation of railway	.....	.....
Total cost of land and buildings owned	.....	.....
Cash	.....	.....
Bills and accounts receivable	.....	.....
Other current assets	.....	.....
Miscellaneous assets	.....	.....
Material and supplies	.....	.....
Profit and loss balance deficit	.....	.....
Total assets		$1,788,800 00
Liabilities:		
Capital stock		$1,100,000 00
Funded debt		688,800 00
Current Liabilities:		
Loans and notes payable	.....	.....
Audited voucher and accounts	.....	.....
Miscellaneous current liabilities	.....	.....
Accrued Liabilities:		
Interest accrued and not due	.....	.....
Profit and loss account balance surplus	.....	.....
Total liabilities		$1,788,800 00
Capital Stock:		
Authorized by law	.....	.....
Authorized by votes of Company	.....	.....
Outstanding	.....	.....
Number of stock holders	.....	.....

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	1,095,488
Transfers	38,322
Number carried per mile of main track operated	.....
Number of car miles run	333,417
Average number of persons employed	71
Company commenced operation	.....

General Exhibit:		
Gross earnings from operating	$87,932 89	
Less operating expenses	77,308 91	
Gross income over operating expenses		$10,623 98
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	.....	
Interest on unfunded debt and loans	$575 35	
Taxes	1,940 14	
		$2,515 49
Payments to municipalities for franchise	.....	
Total deduction from income		8,108 49
Surplus or deficit	.....	
Earnings from operation:		
From passengers carried	$81,153 00	
From freight	4,455 31	
From advertising in cars	825 00	
From other sources	1,499 58	
Total gross earnings from operation		87,932 89
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$3,804 84	
General office expenses and supplies	.....	
Legal expenses	152 96	
Insurance	956 11	
		$4,913 91
Other General Expenses:		
Miscellaneous general expenses	$3,689 88	
		$3,689 88
Maintenance Roadway and Buildings:		
Repair roadbed and track	$1,247 92	
Repair electric line construction	675 12	
Repair of buildings	2,863 96	
		$4,787 00
Maintenance of Equipment:		
Repairs, cars and other vehicles	$5,818 40	
Other expenses	587 42	
Renewals of tools and machinery	.....	
		$6,405 82
Transportation Expenses:		
Cost of motive power	$20,534 60	
Wages of persons conducting transportation	28,557 14	
Removal of snow and ice	3,954 01	
Damages for injuries to persons and to property	215 00	
		53,260 75
Other Transportation Expenses:		
Rentals of terminals	$1,794 69	
Car service expenses and supplies	2,456 86	
Cleaning, oiling and sanding tracks	.....	
		$4,251 55
Superintendence	.....	
Total operating expenses		$77,308 91

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars open 12. closed 12.	.....	.....	.....	.....	.....	.....
Open passenger cars	.....	.....	.....	.....	.....	.....
Total	24	.....	.....	.....	.....	.....
Cars—other service:						
Other cars (motor) work cars (1)	.....	.....	.....	.....	.....	.....
Snow plows (1); sweeper (1)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	38.29
Length of sidings and switches	1.95
	40.24

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured
Passengers	.....	.....	.....	.....	.....	.....
Employees	.....	.....	.....	.....	.....	.....
Other persons	.....	.....	.....	.....	.....	.....
Totals	.....	.....	.....	.....	.....	.....

Corporate name and address of the Company: The Grand Valley Railway Company.

Names and business addresses of principal officers: Chairman of the Board, Murray A. Verner, 216 Colborne Street, Brantford, Ont.; President, Murray A. Verner, 216 Colborne Street, Brantford, Ont.; First Vice-President, W. S. Dinnick, 24 Adelaide Street E., Toronto; Secretary-Treasurer, W. R. Turnbull, Colborne Street, Brantford; General Solicitor, James G. Wallace, Woodstock, Ont.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Sgd.) W. R. TURNBULL, *Treasurer.*

Then personally appeared the above-named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,

(Sgd.) GEORGE H. MUIRHEAD,
Com'r.

GUELPH RADIAL RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring.	.....	
Total cost of railway owned	.....	
Cost of equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost equipment	.....	
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned	.....	
Cash	.....	
Bills and accounts receivable	.....	
Other current assets	.....	
Miscellaneous assets	.....	
Material and supplies	.....	
		$124,585 93
Profit and loss balance deficit	.....	
Total assets	.....	.....
Liabilities:		
Capital stock (paid up)	.....	$126,000 00
Funded debt	.....	103,775 19
Current Liabilities:		
Loans and notes payable	.....	
Audited voucher and accounts	.....	
Miscellaneous current liabilities	.....	
Accrued Liabilities:		
Interest accrued and not due	.....	
Profit and loss account balance surplus	.....	
Total liabilities	.....	$103,775 19
Capital Stock:		
Authorized by law	$200,000 00	
Authorized by votes of Company	200,000 00	
Outstanding	126,000 00	
Number of stock holders		City

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
Debentures			$103.775 19	$4,448 08

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	668,952
Number carried per mile of main track operated	
Number of car miles run	192,500
Average number of persons employed	25
Company commenced operation	

GUELPH RADIAL RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating	$30,367 39	
Less operating expenses	23,958 66	
Gross income over operating expenses		$6,408 73
Charges upon income:		
Accrued during year		
Interest on funded debt		4,448 08
Interest on unfunded debt and loans		
Taxes		
Payment to municipalities for franchise		
Total deduction from income		
Surplus or deficit		$1,960 65
Earnings from Operation:		
From passengers carried	$28,338 16	
From freight	1,070 85	
From advertising in cars	269 00	
From other sources	689 38	
Total gross earnings from operation		$30,367 39
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$1,499 50	
General office expenses and supplies	322 99	
Legal expenses	113 50	
Insurance	496 82	
		$2,432 81
Other General Expenses:		
Advertising		
Miscellaneous general expenses		
Maintenance Roadway and Buildings:		
Repair roadbed and track	$1,543 73	
Repair electric line construction	220 70	
Repair of buildings		
		$1,764 43

Maintenance of Equipment:		
Repairs, cars and other vehicles	$275 83	
Repairs of electric equipment of cars	4,365 64	
Renewals of tools and machinery	130 45	
		$4,771 92
Transportation Expenses:		
Cost of motive power	$4,665 13	
Wages of persons conducting transportation	7,979 54	
Removal of snow and ice	.....	
Damages for injuries to persons and to property	75 00	
		$12,719 67
Other Transportation Expenses:		
Car service expenses and supplies	$2,269 83	
Cleaning, oiling and sanding tracks	.....	
		$2,269 83
Total operating expenses		$23,958 66

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	5	Trailers	.....	.....	.....	.....
Open passenger cars	5	2	.....	10	5	stoves.
Total	.....	.....	.....	.....	.....	.....
Cars—other service:						
Other cars (motor) (1), platform	.....	.....	.....	.....	.....	.....
Snow plows (1);	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	6
Length of sidings and switches	$\frac{1}{3}$
	$6\frac{1}{3}$

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	.....	.....	.....	.....	.....
Employees	.....	.....	.....	.....	.....	.....
Other persons	.....	.....	.....	.....	.....	.....
Totals	.....	.....	.....	.....	.....	.....

Corporate name and address of the Company: Guelph Radial Railway Company.

Names and business addresses of principal officers: President, James W. Lyon, Guelph; Vice-President, John J. Drew, Guelph; Treasurer, George B. Ryan, Guelph; Secretary, James U. Pequegnat, Guelph; General Counsel, Donald Guthrie, Guelph; Auditor, Neff & Company, Toronto; General Manager, John J. Hackney, Guelph. Address correspondence to J. J. Hackney, Manager, Guelph.

Names and residence of Board of Directors: J. J. Drew, Guelph; J. W. Lyon, Guelph; G. B. Ryan, Guelph; James Pequegnat, Guelph; George J. Thorp, Guelph.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Sgd.) J. W. Lyon, *President.*
J. J. Hackney, *Superintendent.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,

(Sgd.) Don. Guthrie,
J.P. or Com'r.

HUNTSVILLE AND LAKE OF BAYS RAILWAY.

General Balance Sheet, 31st December, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	$14,695 67	
Electric line construction, including poles and wiring..	5,139 59	
Total cost of railway owned		$19,835 26
Cost of equipment:		
Cars and other rolling stock and vehicles	$5,813 40	
Cost of electric equipment of same	.....	
Other items of equipment	1,760 71	
Office furniture	.....	
Total cost equipment		$7,574 11
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway....	.....	
Total cost of land and buildings owned		$390 63
Cash	.....	
Bills and accounts receivable	.....	
Other current assets	.....	
Miscellaneous assets	.....	
Material and supplies	.....	
Profit and loss balance deficit	.....	
Total assets		$27,800 00
Liabilities:		
Capital stock	$27,800 00	
Funded debt	.....	
Current Liabilities:		
Loans and notes payable	.....	
Audited voucher and accounts	.....	
Miscellaneous current liabilities	.....	

Accrued Liabilities:		
Interest accrued and not due	.....	
Profit and loss account balance surplus	.....	
Total liabilities		$27,800 00
Capital Stock:		
Authorized by law	$50,000 00	
Authorized by votes of Company	27,800 00	
Outstanding	278 Shares	
Number of stock holders	.....	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	14,000
Number carried per mile of main track operated	14,000
Number of car miles run	1,350
Average number of persons employed	4
Company commenced operation	.....

General Exhibit:		
Gross earnings from operating	$4,542 89	
Less operating expenses	2,895 69	
Gross income over operating expenses		$1,647 20
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	.....	
Taxes	$71 25	
Dividend, 6%	1,668 00	
Payment to municipalities for franchise	.....	
Total deduction from income		1,739 25
Deficit		$92 05
Earnings from Operation:		
From passengers carried	$1,825 45	
From mails	25 00	
From advertising in cars—Freight	1,104 37	
From other sources—Freight	1,588 07	
Total gross earnings from operation		$4,542 89
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	.....	
General office expenses and supplies	.....	
Legal expenses	.....	
Insurance	$45 00	
		$45 00
Other General Expenses:		
Fuel	$443 02	
Miscellaneous general expenses	.....	
		$443 02

Maintenance Roadway and Buildings:		
Repair roadbed and track	$548 06	
Repair electric line construction	.....	
Repair of buildings	.....	
Maintenance of Equipment:		
Repairs, cars and other vehicles	.....	
Repairs of electric equipment of cars	$250 00	
Renewals of tools and machinery	.....	
		$250 00
Transportation Expenses:		
Cost of motive power	.....	
Wages of persons conducting transportation	$1,609 61	
Removal of snow and ice	.....	
Damages for injuries to persons and to property	.....	
		$1,609 61
Other Transportation Expenses:		
Car service expenses and supplies	.....	
Cleaning, oiling and sanding tracks	.....	
Total operating expenses		$2,895 69

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters	Number of Motors.
Box passenger cars	2	.....	.....	.....	2	.....
Cars, 6 Platform	.....	.....	.....	.....	.....	.....
Total	2	.....	.....	.....	2	.....
Cars—other service:						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

Length of railway line computed as single track	1
Length of sidings and switches	.....

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers						
Employees		1				
Other persons						
Totals		1				

Corporate name and address of the Company: The Huntsville and Lake of Bays Railway Company, Huntsville, Ont.

Names and business addresses of principal officers: President, Charles O. Shaw, Huntsville, Ont.; Vice-President, H. Foster Chaffee, Toronto; Treasurer, John W. McKee, Huntsville, Ont.; General Counsel, N. N. Mahaffy, K.C., M.P.P., Bracebridge; Auditors, John W. McKee and W. J. Moore, Huntsville, Ont.; General Manager, Silas H. Jacobs, Huntsville, Ont.

Names and residence of Board of Directors: Charles O. Shaw, Huntsville, Ont.; H. Foster Chaffee, Toronto, Ont.; Silas H. Jacobs, Huntsville, Ont.; Wm. J. Moore, Huntsville, Ont.; John W. McKee, Huntsville, Ont.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Sgd.) C. O. SHAW.
W. F. MOORE.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,

(Sgd.) DONALD GRANT.
J.P. or Com'r.

HAMILTON STREET RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring..	.....	
Total cost of railway owned	.....	.....
Cost of Equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost equipment	.....	.....
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned		$866,674 49

Cash	$83,821 54	
Bills and accounts receivable	3,519 41	
Other current assets	20,644 15	
Miscellaneous assets (insurance prepaid)	1,153 38	
Material and supplies	.....	
		$109,138 48
Profit and loss balance deficit	.....	
Total assets		$975,812 97

Liabilities:		
Capital stock		$205,000 00
Funded debt		500,000 00
		$705,000 00
Current Liabilities:		
Loans and notes payable	$88,918 99	
Audited voucher and accounts	.....	
Miscellaneous current liabilities	1,507 50	
		$90,426 49
Accrued Liabilities:		
Interest accrued and not due	$ 554 80	
Taxes accrued not due	1,358 40	
Profit and loss account balance surplus	178,473 28	180,386 48
Total liabilities		$975,812 97

Capital Stock:	
Authorized by law	205,000 00
Authorized by votes of Company	205,000 00
Outstanding	205,000 00
Number of stock holders	8

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
First Mortgage.....	4½	1928	$500,000	$22,500

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	10,625,054
Number carried per mile of main track operated	482,957
Number of car miles run	1,652,498
Average number of persons employed	216
Company commenced operation	.....

HAMILTON STREET RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating	$410,434 65	
Less operating expenses	255,605 02	
Gross income over operating expenses		$154,829 63

Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	22,500 00	
Interest on unfunded debt and loans	2,513 38	
Taxes	2,887 41	
Payment to municipalities for franchise for year	40,283 67	
		$68,184 46
Total deduction from income		68,184 46
Surplus or deficit		$86,645 17
Earnings from Operation:		
From passengers carried	$405,030 57	
From rentals of buildings	4,451 29	
From advertising in cars	600 00	
From other sources	352 79	
Total gross earnings from operation		$410,434 65
Expenses of Operation:		
General expenses:		
Salaries of officers and clerks	$19,694 06	
General office expenses and supplies	691 28	
Legal expenses	5,165 38	
Insurance	2,756 00	
		$28,306 72
Other general expenses:		
Advertising	639 11	
Miscellaneous general expenses	1,191 91	
		1,831 02
Maintenance roadway and buildings:		
Repair roadbed and track	$6,335 91	
Repair electric line construction	5,217 81	
Repair of buildings	180 83	
		$11,734 55
Maintenance of equipment:		
Repairs, cars and other vehicles	$21,448 58	
Repairs of electric equipment of cars	18,721 04	
Renewals of tools and machinery	3 00	
		$40,172 62
Transportation expenses:		
Cost of motive power	$42,451 63	
Wages of persons conducting transportation	91,848 15	
Removal of snow and ice	4,391 78	
Damages for injuries to persons and to property	16,063 99	
		$154,755 55
Other transportation expenses:		
Rental of buildings	$9,101 60	
Other transportation expenses	9,702 96	
		$18,804 56
Total operating expenses		$255,605 02

Description of Equipment.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	62	.....	.....	66	48	.....
Open passenger cars (trailers)	27	.....	.....	27	18	.....
Total	89	.....	.....	93	66	.....
Cars Other Service:						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows	3	.....	.....	.....	.....	.....

Miscellaneous Equipment.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

Railway Owned and Operated.

	Miles.
Length of railway line computed as single track	22.29
Length of sidings and switches	.....
	22.29

Accidents to Persons.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured
Passengers	.....	43	.....	146	.....	189
Employees	.....	5	.....	.....	.....	5
Other persons	.....	.....	3	62	3	62
Totals	.....	48	3	208	3	256

Corporate name and address of the Company: Hamilton Street Railway Company.

Names and business addresses of principal officers: President, J. R. Moodie, Hamilton, Ont.; Vice-President, John Dickinson, Glanford; Treasurer, John Knox, Hamilton; Clerk of Corporation, Geo. D. Fearman, Hamilton; General Counsel, Gibson, Osborne, O'Reilly & Levy, Hamilton; Auditor, C. S. Scott, Hamilton; General Manager, W. C. Hawkins, Hamilton; Manager, E. P. Coleman, Hamilton.

Names and residence of Board of Directors: J. R. Moodie, James Dickson, John Knox, W. C. Hawkins, Hamilton, Ont.; John Dickenson, Glanford; N. Bruce, W. E. Rundle, Toronto.

We hereby certify that the statements contained in foregoing report are full, just and true.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,

(Signed) JOHN PATTERSON,
J. P. or Com'r.

HAMILTON & DUNDAS RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring	.....	
Total cost of railway owned		.....
Cost of Equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost equipment	.....	
Cost of land and buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned	.....	$353,010 93
Cash	.....	
Bills and accounts receivable	.....	5,762 37
Other current assets	.....	
Miscellaneous assets	.....	
Material and supplies	.....	
Profit and loss balance deficit	.....	
Total assets		$358,773 30
Liabilities:		
Capital stock	$100,000 00	
Funded debt	100,000 00	
		$200,000 00
Current Liabilities:		
Loans and notes payable	$150,000 00	
Audited voucher and accounts	5,363 70	
Miscellaneous current liabilities	.....	$155,363 70
Accrued Liabilities:		
Interest accrued and not due	.....	339 00
Profit and loss account balance surplus	.....	3,070 60
Total liabilities		$358,773 30
Capital Stock:		
Authorized by law	$100,000 00	
Authorized by votes of Company	100,000 00	
Outstanding	100,000 00	
Number of stock holders	.....	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	595,896
Number carried per mile of main track operated	85,128
Number of car miles run	115,434
Average number of persons employed	27
Company commenced operation	.0837

HAMILTON & DUNDAS RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:

Gross earnings from operating	$50,701 96	
Rent of track	2,795 68	
		$53,497 64
Less operating expenses	.....	34,713 65
Gross income over operating expenses		$18,783 99
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	$14,000 00	
Interest on unfunded debt and loans	1 24	
Taxes . . .	1,098 40	$15,099 64
Payment to Municipalities for franchise	.....	
Total deduction from income	.....	
Surplus for year		$3,684 35

Earnings from operation:		
From passengers carried	$49,887 74	
Rentals and other revenue	2,573 44	
From mails	148 00	
From advertising in cars	100 00	
From other sources, Freight, $408.11; Parcels, $380.35..	788 46	
Total gross earnings from operation		$53,497 64

HAMILTON & DUNDAS STREET RAILWAY COMPANY.

Expenses of Operation:

General expenses	$ 129 43	
Salaries of officers and clerks	3,527 57	
	442 31	
General office expenses and supplies	95 73	
Legal expenses	298 80	
Insurance . . .	115 31	
		$4,609 15

Other general expenses:		
Advertising . . .	.....	
Miscellaneous general expenses	.....	
		.....
Maintenance roadway and buildings:		
Repair roadbed and track	$3,140 56	
Repair electric line construction	1,185 62	
Repair of buildings	229 42	
		$4,555 60
Maintenance of equipment:		
Repairs, cars and other vehicles	$1,651 88	
Repairs of electric equipment of cars	538 41	
Renewals of tools and machinery (stabling)	72 75	
		$2,263 04
Transportation expenses:		
Cost of motive power	$4,470 67	
Wages of persons conducting transportation	7,808 54	
Removal of snow and ice	570 66	
Damages for injuries to persons and to property	1,522 74	
		$14,372 61
Other transportation expenses:		
Rental of buildings, etc.	$7,650 16	
Car service expenses and supplies	1,263 09	$8,913 25
Cleaning, oiling and sanding tracks	.....	
Total operating expenses		$34,713 65

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	1	.....	.....	1	1	.....
Open passenger cars	2	.....	.....	2	.....	.....
Total	3	.....	.....	3	1	.....
Cars—other service:						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	6.98
Length of sidings and switches	.....

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	6	.....	3	.....	9
Employees	.....	.....	.....	.....	.....	.....
Other persons	.....	.....	.....	.....	.....	.....
Totals	.....	6	.....	3	.....	9

Corporate name and address of the Company: Hamilton & Dundas Street Railway Company.

Names and business addresses of principal officers: President, John Dickenson, North Glanford, Ont.; Vice-President, James Dixon, Hamilton, Ont.; Treasurer, John Knox, Hamilton, Ont.; Clerk of Corporation, George D. Fearman, Hamilton, Ont.; Auditor, C. S. Scott, Hamilton, Ont.; General Manager, W. C. Hawkins, Hamilton, Ont.; Manager, E. P. Coleman, Hamilton, Ont. Address correspondence to E. P. Coleman, Manager, Hamilton, Ont.

Names and residence of Board of Directors: J. R. Moodie, James Dixon, John Knox, W. C. Hawkins, Hamilton, Ont.; John Dickenson, North Glanford; A. Bruce, W. E. Rundle, Toronto.

We hereby certify that the statements contained in foregoing report are full, just and true.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,

(Signed) JOHN PATTERSON,
J. P. or Com'r.

HAMILTON, GRIMSBY, AND BEAMSVILLE RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring..	.....	
Total cost of railway owned	.....	
Cost of Equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost of equipment	.....	
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway...	.....	
Total cost of land and buildings owned	.....	$417,861 46

Cash	$24,500 85	
Bills and accounts receivable	3,527 72	
Other current assets	837 46	
Miscellaneous assets	.....	
Material and supplies	.....	
		$28,866 03
Profit and loss balance deficit	.....	
Total assets	.....	$446,727 49
Liabilities:		
Capital stock	.....	$235,000 00
Funded debt	.....	150,000 00
Current Liabilities:		
Loans and notes payable	.....	85 68
Audited voucher and accounts	.....	
Miscellaneous current liabilities	.....	
Accrued Liabilities:		
Taxes	$1,021 07	
Interest accrued and not due	1,250 00	
		$2,271 07
Profit and loss account balance surplus	.....	59,370 74
Total Liabilities	.....	$446,727 49
Capital Stock:		
Authorized by law	$235,000 00	
Authorized by votes of Company	235,000 00	
Outstanding	235,000 00	
Number of stockholders	8	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
First Mortgage	5	.....	$150,000	$7,500

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	622,915
Number carried per mile of main track operated	27,563
Number of car miles run	347,054
Average number of persons employed	61
Company commenced operation	'12, '63

HAMILTON, GRIMSBY & BEAMSVILLE RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1910.

General Exhibit:		
Gross earnings from operating	.....	$119,344 23
Less operating expenses	.....	92,386 63
Gross income over operating expenses	.....	$26,957 60
Additional income	.....	2 91
		$26,960 51
Charges upon Income:		
Dividend 6½%, $235,000	$15,275 00	
Interest on funded debt	7,500 00	
Interest on unfunded debt and loans	.....	

Taxes	2,747 83	
Payment to Municipalities for franchise	.....	
Total deduction from Income	.....	$25,522 83
Surplus or deficit	.....	$1,437 68
Earnings from Operation:		
From passengers carried	$78,679 42	
From mails	550 00	
Rentals and other revenue	4,555 53	
From advertising in cars	350 00	
From freight, $27,739.02; express, $7,470.26	35,209 28	
Total gross earnings from operation	.....	$119,344 23
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$7,657 28	
General office expenses and supplies	691 91	
Legal expenses	748 71	
Insurance	628 66	
		$9,726 56
Other General Expenses:		
Advertising	.....	
Miscellaneous general expenses	$1,297 80	
		$1,297 80
Maintenance Roadway and Buildings:		
Repair Roadbed and track	$12,200 81	
Repair electric line construction	2,115 77	
Repair of buildings	557 26	
		$14,873 84
Maintenance of Equipment:		
Repairs, cars and other vehicles	$7,869 03	
Repairs of electric equipment of cars	2,992 51	
Renewals, Miscellaneous equipment	1,679 49	
Provender and stabling	1,499 85	
		$14,040 88
Transportation Expenses:		
Cost of motive power	$13,163 20	
Wages of persons conducting transportation	19,736 27	
Removal of snow and ice	713 20	
Damages for injuries to persons and to property	5,013 47	
		$38,626 14
Other Transportation Expenses:		
Rentals of buildings	$10,824 42	
Other Expenses and supplies	2,996 99	
		$13,821 41
Total operating expenses	.....	$92,386 63

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars (8) cattle cars (3)	8	.....	.....	12	12	.....
Open passenger cars	3	.....	.....	3	.....	.....
Total	11	.....	.....	15	12	.....
Cars—other service:						
Other cars (motor), tool (3)	.....	.....	.....	.....	.....	.....
Snow plows	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	22.6
Length of sidings and switches	.....

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured
Passengers	.....	.....	.....	16	.....	16
Employees	.....	.....	.....	4	.....	4
Other persons	.....	.....	.....	1	.....	1
Totals	.....	.....	.....	21	.....	21

Corporate name and address of the Company: Hamilton, Grimsby and Beamsville Electric Railway Company.

Names and business addresses of principal officers: President, James Dixon, Hamilton; Vice-President, John Dickenson, North Glanford; Treasurer, John Knox, Hamilton; Clerk of Corporation, Geo. D. Fearman, Hamilton; Auditor, C. S. Scott, Hamilton; General Manager, W. C. Hawkins, Hamilton; Manager, E. P. Coleman, Hamilton.

Address correspondence, E. P. Coleman, Manager, Hamilton, Ont.

Names and residence of Board of Directors: J. R. Moodie, Hamilton, Ont.; James Dixon, Hamilton, Ont.; John Knox, Hamilton, Ont.; W. C. Hawkins, Hamilton, Ont.; J. W. Sutherland, Hamilton, Ont.; S. O. Greening, Hamilton, Ont.; John Dickenson, North Glanford.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) JOHN KNOX, *Treasurer.*
(Signed) E. P. COLEMAN, *Manager.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,
(Signed) JOHN PATTERSON,
J. P. or Com'r.

INTERNATIONAL TRANSIT COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	$110,791 54	
Electric line construction, including poles and wiring, including interest during construction	44,214 31	
Total cost of railway owned	.....	$155,005 85

Cost of Equipment:		
Cars and other rolling stock and vehicles	$27,273 91	
Cost of electric equipment of same	17,553 87	
Other items of equipment	9,946 05	
Office furniture	.....	
Total cost of equipment	.....	$54,773 83
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	$26,026 37
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned, including wharves and landings	.....	$92,405 34
Cash	$677 25	
Bills accountable and receivable	2,781 40	
Other current assets	372 57	
		$3,831 22
Miscellaneous assets, rights and franchise	232,899 97	
Material and supplies	4,478 05	
Profit and loss balance deficit	.....	$237,378 02
Total assets	.....	$569,420 63
Liabilities:		
Capital stock	.....	$150,000 00
Funded debt	.....	290,000 00
Current Liabilities:		
Loans and notes payable, old account items	.....	$97,041 27
Audited voucher and accounts	$8,281 67	
Miscellaneous liabilities, Lake Sup. Corporation	$15,794 94	
		$24,076 61
Accrued Liabilities:		
Interest due coupons	$7,250 00	7,250 00
Profit and loss account balance surplus	.....	1,052 75
Total liabilities	.....	$569,420 63
Capital Stock:		
Authorized by law	$150,000 00	
Authorized by votes of Company	150,000 00	
Outstanding	150,000 00	
Number of stock holders	15	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
First Mortgage	5 per cent.	1911	$290,000	$14,750

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	1,650,540
Number carried per mile of main track operated	448,516
Number of car miles run	314,806
Average number of persons employed	25
Company commenced operation	.....

INTERNATIONAL TRANSIT RAILWAY COMPANY.

For the Year Ending 30th June, 1911.

General Exhibit:		
Gross earnings from operating	$76,221 06	
Less operating expenses	38,733 26	
Gross income over operating expenses		$37,487 80
Charges upon Income:		
Accrued during year		
Interest on funded debt	$14,750 00	
Interest on unfunded debt and loans	1,338 66	
Taxes	522 10	
Payment to Municipalities for franchise		
Total deduction from income		$16,610 76
Surplus		$20,877 04
Earnings from Operation:		
From passengers carried	$68,018 69	
From mails		
From advertising in cars	700 05	
From other sources, ferry earnings	7,502 32	
Total gross earnings from operation		$76,221 06
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$3,435 62	
General office expenses and supplies	568 58	
Legal expenses	504 63	
Insurance	734 16	
		$5,242 99
Other General Expenses:		
Advertising	$1,595 26	
Miscellaneous general expenses	821 61	
		$2,416 87
Maintenance Roadway and Buildings:		
Repair roadbed and track	$2,828 82	
Repair electric line construction	297 87	
Repair of buildings	69 03	
		$3,195 72
Maintenance of Equipment:		
Repairs, cars and other vehicles	$3,666 16	
Repairs of electric equipment of cars	861 67	
Renewals of tools and machinery	20 39	
		$4,548 22
Transportation Expenses:		
Cost of motive power	$6,999 88	
Wages of persons conducting transportation	15,780 22	
Removal of snow and ice	102 08	
Damages for injuries to persons and to property	372 75	
		$23,254 93
Other Transportation Expenses:		
Car service expenses and supplies	$74 53	$74 53
Cleaning, oiling and sanding tracks		
Total operating expenses		$38,733 26

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	11	.....	.....	8	8	.....
Trailers	3	.....	.....	.....	.....	.....
Total	.....	.....	.....	.....	.....	.....
Cars—other service:						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows (1)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles Tower wagon Tip carts	None.

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	3.68
Length of sidings and switches	.22
	3.90

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed	Injured.
Passengers	.....	2	.....	.....	.....	2
Employees	.....	.....	.....	.....	.....	.....
Other persons	.....	1	.....	.....	.....	1
Totals	.....	3	.....	.....	.....	3

Corporate name and address of the Company: International Transit Company.

Names and business addresses of principal officers: President, Thomas J. Drummond, Montreal; Vice-Presidents, J. Frater Taylor and W. C. Franz, Sault Ste. Marie, Ont.; Treasurer, Clerk of Corporation, General Counsel, Thomas Gibson, Toronto; Comptroller, Lionel Lumb, Sault Ste. Marie, Ont.; General Manager, W. C. Franz, Sault Ste. Marie, Ont.; Superintendent, H. W. Protzeller, Sault Ste. Marie, Ont.

Names and residence of Board of Directors: T. J. Drummond, Montreal, Drummond, McCall & Co.; W. K. Whigham, New York, 52 William Street; J. Frater Taylor, Sault Ste. Marie, Ont.; J. Tatnall Lea, Philadelphia, 1st National Bank; R. L. Austin, Philadelphia, Girard National Bank; Herbert Coppell, New York, 52 William Street; J. S.

Dale, New York, 52 William Street; L. W. Lovell, New York, 17 Battery Place; W. C. Franz, Sault Ste. Marie, Ont.; T. Gibson, Toronto, Traders Bank Building; H. M. Price, Quebec, H. M. Price & Co.; J. T. Terry, Jun., New York, 100 Broadway.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) THOMAS GIBSON.
(Signed) LIONEL LUMB.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,
(Signed) THOMAS REID, N.P.,
J.P. or Com'r.

KINGSTON, PORTSMOUTH & CATARAQUI RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring.	.....	
Total cost of railway owned	.....	
Cost of Equipment:		
Cars and other rolling stock vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost of equipment	.....	
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned	.....	$100,000 00
Cash	.....	
Bills and accounts receivable	.....	
Other current assets	.....	
Miscellaneous assets	.....	
Material and supplies		
Profit and loss deficit	.....	
Total assets	.....	$100,000 00
Liabilities:		
Capital stock, common, $40,000; preferred, $43,100	.....	$83,100 00
Funded debt, real estate mortgage	100,000 00	
Current Liabilities:		
Loans and notes payable	.....	
Audited voucher and accounts	.....	
Miscellaneous current liabilities	.....	
Accrued Liabilities:		
Interest accrued and not due	.....	$6,910 00
Profit and loss account balance surplus	.....	
Total liabilities	.....	$106,910 00

Capital Stock:

Authorized by law	$83,100 00
Authorized by votes of Company	.....
Outstanding	.....
Number of stockholders	25

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	776,736
Number carried per mile of main track operated	97,092
Number of car miles run	199,680
Average number of persons employed	19
Company commenced operation	.....

KINGSTON, PORTSMOUTH & CATARAQUI RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating	.....	$30,959 60
Rentals and other receipts	.....	1,139 63
		$32,099 23
Less operating expenses	.....	31,453 36
Gross income over operating expenses	.....	$645 87
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	$4,000 00	
Interest on unfunded debt and loans	571 87	
Taxes	.....	
Payment to Municipalities for franchise	.....	
Total deduction from income	.....	$4,571 87
Deficit	.....	$3,926 00
Earnings from Operation:		
From passengers carried	$30,959 60	
From mails, rentals, etc.	1,139 63	
From advertising in cars	.....	
From other sources	.....	
Total gross earnings from operation	.....	$32,099 23
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$2,040 50	
General office expenses and supplies	.....	
Legal expenses	.....	
Insurance	631 08	
		$2,671 58

Other General Expenses:		
Ontario Park	$2,640 33	
Miscellaneous general expenses	1,033 03	
		$3,673 36
Maintenance of Roadway and Buildings:		
Repair roadbed and track	$2,959 71	
Repair electric line construction	422 23	
Repair of buildings	197 47	
		$3,579 41
Maintenance of Equipment:		
Repairs, cars and other vehicles	.....	
Repairs of electric equipment of cars	$5,079 62	
Renewals of tools and machinery and engines	1,258 86	
		$6,338 48
Transportation Expenses:		
Cost of motive power	$3,494 04	
Wages of persons conducting transportation	7,639 25 2,714 74	
Removal of snow and ice	886 80	
Damages for injuries to persons and property	455 70	
		$15,190 53
Other Transportation Expenses:		
Car service expenses and supplies	.....	
Cleaning, oiling and sanding tracks	.....	
Total operating expenses	.....	$31,453 36

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	8	.....	.....	.....	9 stoves	.....
Open passenger cars	12	.....	.....	.....	.....	.....
Total	20	.....	.....	.....	9 stoves	.....
Cars—other service:						
Other cars (motor, 1), Tool car	.....	.....	.....	.....	.....	.....
Snow plows (2)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	8
Length of sidings and switches	.....

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers				5		5
Employees				1		1
Other persons		2				2
Totals		2		6		8

Corporate name and address of the Company: Kingston, Portsmouth & Cataraqui Electric Railway Company, Kingston, Ont.

Names and business addresses of principal officers: President, Henry W. Richardson, Kingston, Ont.; Vice-President, Robert V. Rogers, Kingston, Ont.; Secretary-Treasurer, William F. Nickle, Kingston, Ont.; General Counsel, William F. Nickle, Kingston, Ont.; Superintendent, Hugh C. Nickle, Kingston, Ont.

Address all correspondence to W. F. Nickle, Secretary-Treasurer, Kingston, Ont.

Names and residence of Board of Directors: Henry W. Richardson, Kingston, Ont.; Robert V. Rogers, Kingston, Ont.; William F. Nickle, Kingston, Ont.; Hugh C. Nickle, Kingston, Ont.; George Richardson, Kingston, Ont.; James Richardson, Kingston, Ont.; W. D. Ross, Toronto, Ont.

We hereby certify that the statements contained in foregoing report are full, just and true.

W. F. NICKLE, *President.*
H. C. NICKLE, *Supt.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,
(Signed) G. LATURNEY, N.P.,
J. P. or Com'r.

LONDON STREET RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Interest during construction	$70,937 50	
Roadbed and tracks	596,758 64	
Electric line construction, including poles and wiring.	67,674 37	
Total cost of railway owned		$735,370 51
Cost of Equipment:		
Cars and other rolling stock and vehicles	$113,274 55	
Cost of electric equipment of same	79,739 52	
Other items of equipment	29,522 62	
Office furniture		
Total cost of equipment	$222,536 69	

Cost of land and buildings:		
Land necessary for operation of railway	$85,334 55	
Electric power stations, including equipment	97,348 78	
Other buildings necessary for operation of railway	2,689 86	
Total cost of land and buildings owned		$185,373 19
Other permanent property		5,811 80
Cash	$5,883 86	
Bills and accounts receivable	1,867 96	
Other current assets	2,897 21	
Miscellaneous assets, unexpired insurance	7,323 17	
Material and supplies		17,972 20
Suspense		28,927 92
Profit and loss balance deficit		34,055 82
Total assets		$1,229,418 13
Liabilities:		
Capital stock		$552,000 00
Funded debt		575,000 00
Current Liabilities:		
Loans and notes payable	$21,981 27	
Dividend unpaid	16,560 00	
Miscellaneous current liabilities		
		$38,541 27
Accrued Liabilities:		
Unredeemed tickets	$12,315 37	
Interest accrued and not due	9,243 65	
Taxes accrued and not due	2,550 00	
Profit and loss account balance surplus	40,315 54	
		64,424 56
Total liabilities		$1,229,965 83
Capital Stock: Authorized by law	$750,000 00	
Authorized by votes of Company	600,000 00	
Outstanding	552,000 00	
Number of stock holders	64	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
First mortgage gold	5%	1,925	575,000	28,750

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	7,210,642
Number carried per mile of main track operated	
Number of car miles run	1,432,858
Average number of persons employed	230
Company commenced operation	

LONDON STREET RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating	$265,608 13	
Theatre, etc.	1,207 49	
		$266,815 62
Less operating expenses		182,643 67
Gross income over operating expenses		$84,171 95

Charges upon Income:		
Theatre expenses	$2,214 75	
Interest on funded debt	28,750 00	
Interest on unfunded debt and loans	12 44	
Taxes	5,378 79	
Dividend, 6 per cent.	33,120 00	
		69,475 98
Surplus		$14,695 97
Earnings from Operation:		
From passengers carried	$261,200 43	
From mails and postmen	1,240 00	
From advertising in cars	2,201 07	
From other sources	966 63	
Total gross earnings from operation		$265,608 13
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	6,258 09	
General office expenses and supplies	691 14	
Legal expenses	517 49	
Insurance	2,232 50	
		$9,699 22
Other General Expenses:		
Advertising	$2,137 48	
Miscellaneous general expenses	777 30	
		2,914 78
Maintenance Roadway and Buildings:		
Repair roadbed and track	$18,374 46	
Repair electric line construction	2,831 48	
Repair of buildings	545 07	
		21,751 01
Maintenance of Equipment:		
Shop expenses	$3,150 19	
Repairs, cars and other vehicles	10,373 75	
Repairs of electric equipment of cars	14,739 03	
Renewals of tools and machinery	700 48	
		$28,963 45
Transportation Expenses:		
Cost of motive power	$35,010 81	
Wages of persons conducting transportation	68,869 19	
Removal of snow and ice	1,031 01	
Damages for injuries to persons and to property	10,447 99	
		115,359 00
Other Transportation Expenses:		
Car service expenses and supplies	3,966 21	
		3,966 21
Total operating expenses		$182,653 67

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters	Number of Motors.
Box passenger cars	39	Trailers			49	Stoves
Open passenger cars	9	5		42	1	Heaters
Totals						
Cars—other service:						
Other cars (motor), platform (1)						
Snow plow (1) tool (1)						

MISCELLANEOUS EQUIPMENT.

Highway vehicles, Flat cars 2	Horses, 1
Tower wagon, snow lifter 1	
Tip carts line wagons 2	

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	25.73
2nd track	6.79
Length of sidings and switches	73
	33.25

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers						30
Employees						16
Other persons			1		1	21
Totals			1		1	67

Corporate name and address of the Company: The London Street Railway Company, London, Canada.

Names and business addresses of principal officers: President, Henry A. Everitt, Cleveland, Ohio; Vice-President, Thomas H. Smallman, London, Canada; Treasurer, John W. Williams, London Canada; Clerk of Corporation, John W. Williams, London, Canada; General Counsel, Ovey & Dromgole, London Canada; Auditors, F. H. Coles and A. E. Jerdon, London, Canada; General Manager, C. B. King, London, Canada; Superintendent, James Young London, Canada.

Names and residence of Board of Directors: Henry A. Everitt, Cleveland, Ohio; Edw. W. Moore, Cleveland, Ohio; Charles W. Wason, Cleveland, Ohio; H. S. Holt, Montreal, Can.; Thos. H. Smallman, London, Can.; P. W. D. Broderick, Toronto, Can.; Wm. M. Spencer, London, Can.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) J. W. Williams, *Treasurer.*

(Signed) C. B. King, *Manager.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,

(Signed) C. H. Judd,
J. P. or Com'r.

MIDLAND TERMINAL RAILWAY COMPANY.

General Balance Sheet, 31st December, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks		$31,078 45
Electric line construction, including poles and wiring		
Total cost of railway owned		
Cost of Equipment:		
Cars and other rolling stock and vehicles	$12,500 00	
Cost of electric equipment of same		
Other items of equipment (tools)	122 20	12,622 20
Office furniture		
Total cost of equipment		
Cost of Land and Buildings:		
Land necessary for operation of railway	$228,680 14	
Electric power stations, including equipment	335 19	
Other buildings necessary for operation of railway		
Total cost of land and buldings owned		$229,015 33
Cash		
Bills and accounts receivable		
Other current assets		
Miscellaneous assets		
Material and supplies		
Profit and loss balance deficit		$4,605 74
Total assets		$277,321 72
Liabilities:		
Capital stock		$250,000 00
Funded debt		
Current Liabilities:		
Loans and notes payable		$27,321 72
Audited voucher and accounts		
Miscellaneous current liabilities		

Accrued Liabilities:		
Interest accrued and not due		
Profit and loss account balance surplus		
Total liabilities		$277,321 72
Capital Stock:		
Authorized by law	$500,000 00	
Authorized by votes of Company	500,000 00	
Outstanding	25,000 00	
Number of stockholders	11	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
....				

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	
Number carried per mile of main track operated	
Number of tons freight	334,400 tons
Average number of persons employed	
Company commenced operation	

REPORT OF THE MIDLAND TERMINAL RAILWAY COMPANY.

FOR THE YEAR ENDING 31ST MAY, 1911.

General Exhibit:		
Gross earnings from operating		$20,902 50
Less operating expenses		21,465 96
Gross income under operating expenses		$563 46
Charges Upon Income:		
Accrued during year		
Interest on funded debt		
Interest on unfunded debt and loans		$1,385 79
Deficit, 1910		2,656 49
Payment to Municipalities for franchise		
Total deduction from Income		
Surplus or deficit		$4,605 74
Earnings from Operation:		
From passengers carried		
From freight	20,902 50	
From advertising in cars		
From other sources		
Total gross earnings from operation		$20,902 50
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks		
General office expenses and supplies		
Legal expenses		
Insurance		

Other General Expenses:		
Advertising	.....	
Miscellaneous general expenses	$46 45	
		$46 45
Maintenance Roadway and Buildings:		
Repair roadbed and track	$3,188 61	
Repair electric line construction	.....	
Repair of buildings	.....	
		$3,188 61
Maintenance of Equipment:		
Repairs, cars and other vehicles	$683 16	
Repairs of electric equipment of cars	.....	
Renewals of tools and machinery	.....	
		$683 16
Transportation Expenses:		
Cost of motive power	.....	
Wages of persons conducting transportation	$17,547 74	
Removal of snow and ice	.....	
Damages for injuries to persons and property	.....	
		$17,547 74
Other Transportation Expenses:		
Car service expenses and supplies	.....	
Cleaning, oiling and sanding tracks	.....	
Total operating expenses	.....	$21,465 96

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Platform cars	4	.....	.....	.....	.....	.....
Cove Dump cars	2	.....	.....	.....	.....	.....
Totals	..	.....	.....	.....	.....	.....
Cars—other service:						
Other cars (motor)	Not given.	.....	.....	.....	.....	.....
Snow plows		.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	4
Length of sidings and switches	.....

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers						
Employees						
Other persons						
Totals						

Corporate name and address of the Company: Midland Terminal Railway Co., Midland, Ont.

Names and business addresses of principal officers: President, John J. Drummond, Midland, Ont.; Vice-President, George E. Drummond, Montreal, P.Q.; Treasurer, Arthur K. Fisk, Montreal, P.Q.; Clerk of Corporation, A. C. Adams, Midland, Ont.; General Counsel, W. J. White, K.C., Montreal, P.Q.; Auditors, A. K. Fisk & Co., C.A., Montreal, P.Q.; General Manager and Superintendent, John J. Drummond, Midland.

Names and residence of Board of Directors: John J. Drummond, Midland, Ont.: George E. Drummond, Montreal, P.Q.; Arthur K. Fisk, Montreal, P.Q.; C. Ed. Gudewill, Montreal, P.Q.; Richard Wilton, Montreal, P.Q.; Frank Leeming, Montreal, P.Q.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) A. K. FISK, Treas.
J. J. DRUMMOND, Supt.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,

(Signed) EDGAR MCDOUGALL,
J.P., or Com'r.

NIAGARA FALLS PARK AND RIVER DIVISION OF INTERNATIONAL RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:

This division has no assets separate and apart from the assets of the International Railway Company.

Liabilities:

Not given. This division has no liabilities separate and apart from those of the International Railway Company.

Capital Stock:

Authorized by law .....
Authorized by votes of Company .....
Outstanding .....
Number of stock holders .....

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	1,331,645
Number carried per mile of main track operated	57,607
Number of car miles run	333,195
Average number of persons employed	55
Company commenced operation	.....

NIAGARA FALLS PARK AND RIVER DIVISION OF INTERNATIONAL RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Rent of land and buildings	$7,303 86	
Gross earnings from operating	162,171 66	
		$169,475 52
Less operating expenses		81,839 97
Gross income over operating expenses		$87,635 55
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	$30,000	
Interest on unfunded debt and loans	.....	
Taxes	3,395 60	
Payment to municipalities for franchise	.....	
Total deduction from income		33,395 60
Surplus or deficit		$54,239 95
Earnings from Operation:		
From passengers carried	$151,249 57	
From mails	199 92	
From advertising in cars	534 00	
From other sources, switching, etc.	10,188 17	
Total gross earnings from operation		$162,171 66
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$1,628 54	
General office expenses and supplies	1,311 53	
Legal expenses	276 84	
Insurance	2,875 00	
		$6,091 91

Other General Expenses:		
Advertising	2,840 52	
Miscellaneous general expenses	10,200 60	
		13,041 12
Maintenance Roadway and Buildings:		
Repair roadbed and track	$17,601 84	
Repair electric line construction	2,775 80	
Repair of buildings	3,698 28	
		24,075 92
Maintenance of Equipment:		
Repairs, cars and other vehicles	3,417 01	
Repairs of electric equipment of cars	1,121 90	
Renewals of tools and machinery	152 42	
		4,691 33
Transportation Expenses:		
Cost of motive power	5,971 64	
Wages of persons conducting transportation	25,994 16	
Removal of snow and ice	692 27	
Damages for injuries to persons and to property	650 11	
		33,308 18
Other Transportation Expenses:		
Car service expenses and supplies	.....	631 51
Cleaning, oiling and sanding tracks	.....	
Total operating expenses		$81,839 97

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	9	.....	.....	.....	9	.....
Open passenger cars	18	.....	.....	.....	.....	.....
Total	.....	.....	.....	.....	.....	.....
Cars—Other service:						
Other cars (motor) (2 baggage)	.....	.....	.....	.....	.....	.....
Snow plows (1) platform (2)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	11,914
2nd track	11,202
Length of sidings and switches	992
	24,108

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured
Passengers		14				14
Employees						
Other persons						
Totals		14				14

Corporate name and address of the Company: Niagara Falls Park and River Division of the International Railway Company, 824 Ellicott Square, Buffalo, N.Y.

Names and business addresses of principal officers: President, Thomas Penney, 816 Ellicott Square, Buffalo, N.Y.; Vice-President, Thos. E. Mitten, First National Bank Building, Chicago, Ill.; Treasurer, George Chambers, 820 Ellicott Square, Buffalo, N.Y.; Clerk of Corporation, Willis C. Dunbar, 824 Ellicott Square, Buffalo, N.Y.; General Counsel, Norton, Penney, Spring & Moore, 860 Ellicott Square, Buffalo, N.Y.; Cohn, Chorman & Franchot, 44 Falls Street, Niagara Falls, N.Y.; Alexander Fraser, Niagara Falls, Ont.; Auditor, Charles A. Chavel, 830 Ellicott Square, Buffalo, N.Y.; General Manager, Thos. W. Wilson, 808 Ellicott Square, Buffalo, N.Y.; Superintendent, N. S. Baker, Niagara Falls, N.Y.

Names and residences of Board of Directors: Geo. S. Boissevain, New York; Morris Cohn, Jr., Niagara Falls, N.Y.; Thos. Dewitt Cuyler, Philadelphia, Pa.; Robt. L. Fryer, Buffalo N.Y.; Ogden P. Letchworth, Buffalo, N.Y.; Thomas E. Mitten, Chicago, Ill.; Porter Norton, Buffalo, N.Y.; Edmund B. Osler, Toronto, Ont.; Oliver H. Payne, New York; Thos. Penney, Buffalo, N.Y.; Robt. W. Pomeroy, Buffalo, N.Y.; Nelson Robinson, New York; Arch. M. Robinson, Louisville, Ky.; *John C. Russell, Louisville, Ky.; Geo. T. Teney, Buffalo, N.Y.; *Henry M. Watson, Buffalo, N.Y.; Henry C. Zeller, Buffalo, N.Y.

(Signed) GEORGE CHAMBERS.
(Signed) N. P. BAKER.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,
(Signed) JOHN A. MCKENNA,
J. P. or Com'r.

PETERBORO RADIAL RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

Assets:

Cost of Railway:		
Roadbed and tracks	$30,246 43	
Electric line construction, including poles and wiring.	8,501 94	
Total cost of railway owned		$38,748 37
Cost of Equipment:		
Cars and other rolling stock and vehicles	$23,107 91	
Cost of electric equipment of same	4,788 46	
Other items of equipment	95 00	
Office furniture	108,602 37	
Total cost equipment		136,593 74

*Deceased.

Cost of Land and Buildings:		
Land necessary for operation of railway	3,671 03	
Electric power stations, including equipment	1,287 27	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned		$4,958 30
Cash	$4,220 82	
Bills and accounts receivable	.....	
Other current assets	.....	
Miscellaneous assets	128 23	
Material and supplies	2,592 86	
		6,941 91
Profit and loss balance deficit	.....	
Total assets		$187,242 32
Liabilities:		
Capital stock	.....	$100,000 00
Funded debt	.....	50,000 00
Current Liabilities:		
Loans and notes payable	$27,328 40	
Audited voucher and accounts	.....	
Miscellaneous current liabilities	61 88	
		27,390 28
Accrued Liabilities:		
Interest accrued and not due	.....	833 33
Profit and loss account balance surplus	.....	9,018 71
Total liabilities		$187,242 32
Capital Stock:		
Authorized by law	$500,000 00	
Authorized by votes of Company	500,000 00	
Outstanding	100,000 00	
Number of stockholders	.....	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
First Mortgage	5 %	1,934	$50,000	$2,500

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	810,124
Number carried per mile of main track operated	158,848
Number of car miles run	255,218
Average number of persons employed	not given.
Company commenced operation	.....

REPORT OF THE PETERBORO RADIAL RAILWAY COMPANY

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating	$37,060 23	
Less operating expenses	28,706 91	
Gross income over operating expenses		$8,353 32

Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	2,500	
Interest on unfunded debt and loans	1,530 50	
Taxes	102 00	$4,132 50
Payment to municipalities for franchise	.....	
Total deduction from income		
Surplus or deficit		$4,220 82
Earnings from Operation:		
From passengers carried	$36,380 20	
From mails	.....	
From advertising in cars	199 99	
From other sources	480 04	
Total gross earnings from operation		$37,060 23
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$3,411 23	
General office expenses and supplies	742 03	
Legal expenses	218 20	
Insurance	1,248 78	
		$5,620 24
Other General Expenses:		
Advertising	.....	
Miscellaneous general expenses	$1,599 75	
		1,599 75
Maintenance Roadway and Buildings:		
Repair roadbed and track	$1,377 96	
Repair electric line construction	293 22	
Repair of buildings	12 12	
		1,683 30
Maintenance of Equipment:		
Repairs, cars and other vehicles	.....	
Repairs of electric equipment of cars	2,527 64	
Renewals of tools and machinery	1,398 69	
		3,926 33
Transportation Expenses:		
Cost of motive power	$1,500 00	
Wages of persons conducting transportation	12,705 67	
Removal of snow and ice	164 34	
Damages for injuries to persons and to property	.....	
		$14,370 01
Other Transportation Expenses:		
Car service expenses and supplies Cleaning, oiling and sanding tracks	$1,507 28	
		1,507 28
Total operating expenses		$28,706 91

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	8	Trailers	.....	.....	.....	.....
Open passenger cars	2	4	.....	14	8	.....
Total	10	.....	.....	.....	.....	.....
Cars—other service:						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows (1), snow sweepers (1)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	1
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	5.1
Length of sidings and switches	.142
	5.242

ACCIDENTS TO PERSONS

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	.....	.....	.....	.....	.....
Employees	.....	.....	.....	.....	.....	.....
Other persons	.....	.....	.....	.....	.....	.....
Total	.....	.....	.....	.....	.....	.....

Corporate name and address of the Company: Peterborough Radial Railway Company, Peterborough, Ont.

Names and business addresses of principal officers: President, John G. G. Kerry, Treasurer, John Littlejohn; General Counsel, Denniston, Peck and Kerr, Peterboro, Ont.; Auditor, P. S. Ross & Sons, Montreal; General Manager, James H. Larmouth; Superintendent, W. H. Munro. Address correspondence to John Littlejohn, Treasurer, 504 Confederation Life Building, Toronto.

Names and residence of Board of Directors: Strachan Johnston, Toronto; J. G. G. Kerry, Toronto; John Littlejohn, Toronto; W. L. Morlock, Toronto; A. A. Mulholland, Campbellford; A. B. Colville, Campbellford; E. A. Macnutt, Montreal.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) JOHN LITTLEJOHN, *Treas.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,

(Signed) D. E. MUNSON, N.P.,
J. P. or Com'r.

PORT ARTHUR AND FORT WILLIAM ELECTRIC RAILWAY COMPANY

General Balance Sheet, 30th June, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks to Port Arthur		$400,240 55
Roadbed and tracks to Fort William		437,906 65
Electric line construction, including poles and wiring..		
Total cost of railway owned		
Cost of Equipment:		
Cars and other rolling stock and vehicles		
Cost of electric equipment of same		
Other items of equipment		
Office furniture		
Total cost of equipment		
Cost of Land and Buildings:		
Land necessary for operation of railway		
Electric power stations, including equipment		
Other buildings necessary for operation of railway ...		
Cash	$82,084 25	
Bills and accounts receivable	12,717 03	
Other current assets		
Miscellaneous assets		
Material and supplies	6,263 73	
		101,065 01
Profit and loss balance deficit ...		
Total assets		$939,212 21
Liabilities:		
Capital stock		
Funded debt		$838,147 20
Current Liabilities:		
Salaries, wages and reserves	$19,032 50	
Audited voucher and accounts	8,753 73	
Miscellaneous current liabilities		
		27,786 23
Accrued Liabilities:		
Interest and sinking fund		73,278 78
Profit and loss account balance surplus		
Total liabilities		$939,212 21
Capital Stock:		
Authorized by law		
Authorized by votes of Company		
Outstanding		
Number of stock holders		

Funded Debt.

Description Bonds	Rate Interest	Maturity Bonds	Amount of Bonds Outstanding	Interest paid during year
Various issues	various		$906,276 18	$3,877,117

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during the year	3,407,918
Number carried per mile of main track operated	152,593
Number of car miles run	654,015
Average number of persons employed	90
Company commenced operation	incorporated 1893

REPORT OF THE PORT ARTHUR AND FORT WILLIAM ELECTRIC RAILWAY COMPANY

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:

Gross earnings from operating	$154,072 32	
Less operating expenses	97,526 01	
Gross income over operating expenses		$56,546 31
Interest on deposits		2,176 09
		$58,722 40
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	.....	38,771 17
Interest on unfunded debt and loans	.....	
Taxes	.....	
Payment to municipalities for franchise	.....	
Total deduction from income		
Surplus or deficit		$19,951 23
Earnings from Operation:		
From passengers carried	$140,058 31	
From mails	379 16	
From advertising in cars	705 30	
From baggage, $2,769.03 freight, $9,457.47	12,226 50	
From other sources	703 05	
Total gross earnings from operation		$154,072 32
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$3,872 59	
General office expenses and supplies	681 21	
Legal expenses	89 10	
Insurance	1,469 96	
		$6,112 86
Other General Expenses:		
Advertising	.....	
Miscellaneous general expenses	$494 20	
		$494 20
Maintenance Roadway and Buildings:		
Repair roadbed and track	$6,702 32	
Repair electric line construction	2,367 76	
Repair of buildings	1,169 11	
		$10,239 19
Maintenance of Equipment:		
Repairs, cars and other vehicles	$12,248 80	
Repairs of electric equipment of cars	5,544 06	
Renewals of tools and machinery	667 66	
		$18,460 52

Transportation Expenses:		
Cost of motive power	$19,743 10	
Wages of persons conducting transportation	40,658 48	
Removal of snow and ice	1,699 01	
Damages for injuries to persons and property	118 65	
		$62,219 24
Other Transportation Expenses:		
Car service expenses and supplies	.....	
Cleaning, oiling and sanding tracks	.....	
Total operating expenses	.....	$97,526 01

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	20	.....	.....	21	6 stoves	.....
Open passenger cars, trailers	2	.....	.....	.....	.....	.....
Total	22	.....	.....	21	6 stoves	.....
Cars—other Service:						
Other cars (motor), electric motors	2	.....	.....	.....	.....	.....
Baggage car	1	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	13.333
Length of siding and switches	9.
Total	22.333

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	2	1	3	1	5
Employees	.....	.....	1	.....	1	.....
Other persons	.....	.....	1	2	1	2
Totals	.....	2	3	5	3	7

Corporate name and address of the Company: The Port Arthur and Fort William Electric Railway Co., Port Arthur, Ont.

Names and business addresses of principal officers: Chairman, C. W. Jarvis, Fort William; Treasurer and Secretary, M. C. Wilson, Port Arthur; General Counsel, W. F. Langworthy, Port Arthur; Auditor, P. H. B. Dawson, Fort William, Ont.; General Manager, M. O. Robinson, Fort William, Ont.

Names and residence of Board of Directors: Chairman, Charles W. Jarvis, Fort William; Commissioners, Walter F. Fortune, Port Arthur; James A. Little, Port Arthur; Harry Harkness, Fort William; William J. Ross, Fort William.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed)

C. W. Jarvis, *Chairman.*
W. J. Kress.
H. Harkness.
J. A. Little.
W. F. Fortune.
W. C. Wilson, *Treasurer.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,

(Signed) W. R. Langworthy,
J. P. or Com'r.

SANDWICH, WINDSOR AND AMHERSTBURG RAILWAY COMPANY.

General Balance Sheet, 30th June, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring	.....	
Total cost of railway owned	.....	
Cost of Equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost of equipment	.....	
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned	.....	$1,009,020 85
Cash	$34,285 51	
Bills and accounts receivable	11,011 39	
Other current assets	10,000 00	
Miscellaneous	.....	
Material and supplies	1,203 82	
		$56,500 72
Profit and loss balance deficit	.....	.....
Total assets	.....	$1,065,521 57
Liabilities:		
Capital stock	.....	$297,000 00
Funded debt	490,000 00	

Current Liabilities:		
Loans and notes payable, D. W. R.	$152,063 83	
Audited voucher and accounts	73 08	
Miscellaneous current liabilities (tickets)	3,254 51	
		$155,391 42
Accrued Liabilities:		
Taxes accrued, not due	$1,280 73	
Interest accrued and not due	4,987 50	
Damages	2,394 95	
Profit and loss account balance surplus	114,466 97	
		$123,130 15
Total liabilities		$1,065,521 57
Capital Stock:		
Authorized by law	$500,000 00	
Authorized by votes of Company	350,000 00	
Outstanding		$297,000 00
Number of stock holders		

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding	Interest paid during year.
First Mortgage Gold	4½		$490,000	$22,050

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	3,428,634
Number carried per mile of main track operated	95,084
Number of car miles run	875,040
Average number of persons employed	not given
Company commenced operation	

SANDWICH, WINDSOR AND AMHERSTBURG RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating		$224,979 66
Less operating expenses		94,409 25
Gross income over operating expenses		$130,570 41
Charges upon Income:		
Accrued during year		
Interest on funded debt	$31,500 00	
Interest on unfunded debt and loans		
Taxes	2,700 00	
Payment to Municipalities for franchise		
		$34,200 00
Total deduction from income		
Surplus or deficit		$96,370 41
Earnings from Operation:		
From lighting	$30,045 47	
From passengers carried	187,028 74	
From mails	800 00	
From advertising in cars	575 00	
From other sources	6,530 45	
Total gross earnings from operation		$224,979 66

Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$4,140 00	
General office expenses and supplies	490 00	
Legal expenses	1,000 00	
Insurance	900 00	
		$6,530 00
Other General Expenses:		
Advertising	.....	
Miscellaneous and general expenses	$3,423 37	
		$3,423 37
Maintenance of Roadway and Buildings:		
Repair roadbed and track	$12,109 39	
Repair electric line construction	2,448 04	
Repair of buildings	885 40	
		$15,442 83
Maintenance of Equipment:		
Repairs, cars and other vehicles	$5,517 01	
Repairs of electric equipment of cars	4,394 71	
Renewals of tools and machinery	972 80	
		$10,884 52
Transportation Expenses:		
Cost of motive power	$13,257 73	
Wages of persons conducting transportation	42,587 95	
Removal of snow and ice	.....	
Damages for injuries to persons and property	935 13	
		$56,780 81
Other Transportation Expenses:		
Car service expenses and supplies	$1,347 72	
Cleaning, oiling and sanding tracks	.....	
		$1,347 72
Total operating expenses	.....	$94,409 25

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	18	.....	.....	.....	.....	.....
Open passenger cars (16), Trailers (4)	16	.....	.....	.....	.....	.....
Total	34	.....	.....	.....	.....	.....
Cars—other service :						
Other cars (motor, 3 tool)	.....	.....	.....	.....	.....	.....
Snow plows (1)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	36.06
Length of line under lease	.....
Total	36.06

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	.....	.....	.....	.....	.....
Employees	.....	.....	.....	.....	.....	.....
Other persons	.....	.....	.....	.....	.....	.....
Totals	.....	.....	.....	.....	.....	.....

Corporate name and address of the Company: Sandwich, Windsor and Amherstburg Railway, Windsor, Ont.

Names and business addresses of principal officers: President, Jere C. Hutchins; Vice-President, Frank W. Brooks; Treasurer, Joseph Bampton; Clerk of Corporation, Albert E. Peters; General Counsel, Clark, Bartlett & Bartlett; Auditor, Irwin Fullerton; General Manager, James Anderson; Superintendent, Moses Brocklebank.

Address correspondence to James Anderson, General Manager, Windsor, Ont.

Names and residence of Board of Directors: James Anderson, Windsor, Ont.; Joseph Bampton, Detroit, Mich.; Frank W. Brooks, Detroit, Mich.; Allen F. Edwards, Detroit, Mich.; Jere C. Hutchins Detroit, Mich.; Edward W. Moore, Cleveland, Ohio; Arthur Palk, Pontiac, Mich.; Albert E. Peters, Detroit, Mich.

We hereby certify that the statements contained in foregoing report are full, just and true.

JAMES ANDERSON, *General Manager.*
JOSEPH BAMPTON, *Treasurer.*
A. C. PETERS.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,
(Signed) A. R. BARTLETT,
J. P. or Com'r.

ST. THOMAS STREET RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring..	.....	
Total cost of railway owned	.....	$37,817 00

Cost of Equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost of equipment	.....	$32,683 00
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned	.....	$4,500 00
Cash	$24 30	
Bills and accounts receivable	100 00	
Other current assets	.....	
Miscellaneous assets	.....	
Material and supplies	.....	$124 30
Profit and loss balance deficit	.....	
Total assets	.....	$75,124 30
Liabilities:		
Capital Stock	.....	
Funded debt	.....	$57,428 29
Current Liabilities:		
Loans and notes payable	$1,761 10	
Audited voucher and accounts	7,486 13	
Miscellaneous current liabilities	.....	$9,247 23
Accrued Liabilities:		
Interest accrued and not due	.....	
Profit and loss account balance surplus	.....	8,448 78
Total liabilities	.....	$75,124 30
Capital Stock:		
Authorized by law	.....	
Authorized by votes of Company	.....	
Outstanding	.....	
Number of stock holders	.....	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	401,196
Number carried per mile of main track operated	37,560
Number of car miles run	281,700
Average number of persons employed	28
Company commenced operation	.....

ST. THOMAS STREET RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating		$16,343 04
Less operating expenses		24,828 25
Deficit on operating expenses		$8,485 21
Charges upon Income:		
Accrued during year		
Interest on funded debt		
Interest on unfunded debt and loans		
Taxes		
Payment to Municipalities for franchise		
Total deduction from income		
Surplus or deficit		
Earnings from Operation:		
From passengers carried	$14,594 96	
From trackage	1,200 00	
From advertising in cars	252 45	
From other sources	295 63	
Total gross earnings from operation		$16,343 04
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$900 00	
General office expenses and supplies	420 00	
Legal expenses		
Insurance	683 70	
		$2,003 70
Other General Expenses:		
Advertising		
Miscellaneous general expenses	52 25	
		$52 25
Maintenance Roadway and Buildings:		
Repair roadbed and track	$1,859 98	
Repair electric line construction		
Repair of buildings		
		$1,859 98
Maintenance of Equipment:		
Repairs, cars and other vehicles	$2,437 96	
Repairs of electric equipment of cars		
Renewals of tools and machinery		
		$2,437 96
Transportation Expenses:		
Cost of motive power	$4,200 00	
Wages of persons conducting transportation	14,274 36	
Removal of snow and ice		
Damages for injuries to persons and property		
		$18,474 36
Other Transportation Expenses:		
Car service expenses and supplies		
Cleaning, sanding and oiling tracks		
Total operating expenses		$24,828 25

Description of Equipment.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors
		Trailers				
Box passenger cars	6	.....	6	.....	6	.....
Open passenger cars	6	4	6	.....	6	.....
Totals	12	4	12	.....	12	.....
Cars—other Service						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows (1)	.....	.....	.....	.....	.....	.....

Miscellaneous Equipment.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

Railway Owned and Operated.

	Miles.
Length of railway line computed as single track	7.50
Length of sidings and switches	.....
	.....

Accidents to Persons.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	.....	.....	.....	.....	.....
Employees	.....	.....	.....	.....	.....	.....
Other persons	.....	.....	.....	.....	.....	.....
Totals	.....	.....	.....	.....	.....	.....

Corporate name and address of the Company: St. Thomas Street Railway, City Hall, St. Thomas, Ont.

Names and business addresses of principal officers: Treasurer and Secretary, (Miss) Ella Lindsay, St. Thomas, Ont.; Clerk of Corporation, W. Burton Doherty, Esq.; Auditor, Henry T. Gough Esq.; Superintendent, J. Fred. Daugherty.

Names and residence of Board of Directors: Mayor, Dr. Frederick Guest; Chairman, Robert N. Price, Esq.

We hereby certify that the statements contained in foregoing report are full, just and true.

ELLA LINDSAY, *Treasurer.*
J. F. DAUGHERTY, *Superintendent.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,

J. P. or Com'r.

SARNIA STREET RAILWAY COMPANY.

GENERAL BALANCE SHEET 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	$97,088 28	
Electric line construction, including poles and wiring	16,882 12	
Total cost of railway owned		$113,970 40
Cost of Equipment:		
Cars and other rolling stock and vehicles	$23,742 54	
Cost of electric equipment of same	31,223 36	
Other items of equipment		
Office furniture		
Total cost of equipment		$54,965 90
Cost of Land and Buildings:		
Land necessary for operation of railway	$10,522 93	
Electric power stations, including equipment	7,714 82	
Other buildiugs necessary for operation of railway	15,874 35	
Total cost of land and buildings owned		$34,112 10
Cash		3,663 81
Bills and accounts receivable		
Other current assets		
Miscellaneous assets		
Material and supplies		
Profit and loss balance deficit		
Total assets		$206,712 21
Liabilities:		
Capital stock		$90,000 00
Funded debt		
Current Liabilities:		
Real estate mortgage		$79,100 00
Audited voucher and accounts		6,500 00
Miscellaneous current liabilities		
Accrued Liabilities:		
Interest accrued and not due		
Profit and loss account balauce surplus		$31,112 21
Total liabilities		$206,712 21
Capital Stock:		
Authorized by law	$100,000 00	
Authorized by votes of Company	100,000 00	
Outstanding	90,000 00	
Number of stockholders	65	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
Ten year's debentures	5 per cent.	$1,915	$79,100	$3,982 50

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	800,210
Number carried per mile of main track operated	78,223
Number of car miles run	143,990
Average number of persons employed	28
Company commenced operation	.....

SARNIA STREET RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating	$45,926 70	
Other revenue	441 90	
		46,368 60
Less operating expenses	.....	30,904 33
Gross income over operating expenses	.....	$15,464 27
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	$3,982 50	
Interest on unfunded debt and loans	.....	
Taxes	441 90	
Dividend 6%, $90,000	5,400 00	
Total deduction from income	.....	$9,824 40
Surplus or deficit	.....	$5,639 87
Earnings from Operation:		
From passengers carried	$35,351 47	
From mails	1,555 00	
Freight and parcels	6,040 21	
From advertising in cars	.....	
From other sources, park, etc.	2,980 02	
Total gross earnings from operation	.....	$45,926 70
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$2,735 00	
General office expenses and supplies	484 20	
Legal expenses	63 14	
Insurance	901 64	
		$4,183 98
Other General Expenses:		
Advertising, maintenance park, etc.	$2,932 37	
Miscellaneous general expenses	.....	
		$2,932 37
Maintenance Roadway and Buildings:		
Repair roadbed and track	.....	
Repair electric line construction	.....	
Repair of buildings	.....	

Maintenance of Equipment:		
Repairs, cars and other vehicles	$1,501 37	
Repairs of electric equipment of cars	.....	
Provender and stabling	1,153 53	
		$2,654 90
Transportation Expenses:		
Cost of motive power	$5,670 11	
Wages of persons conducting transportation	15,462 97	
Removal of snow and ice	.....	
Damages for injuries to persons and property	.....	
		$21,133 08
Other Transportation Expenses:		
Car service expenses and supplies	.....	
Cleaning, oiling and sanding tracks	.....	
Total operating expenses	.....	$30,904 33

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	10	Trai ers	....	11	7	stoves
Open passenger cars	.....	2	.....	.....	.....	.....
Total	.....	.. ....	.....	.....	.....	.....
Cars—other Service:						
Other cars (motor) baggage express (1)..	.....	.....	.....	.....	.....	.....
Snow plows	....	.....	.....	... .	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon, carts and sleds	5
Tip carts, wagons (5); horses (8)	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	8.25
Length of sidings and switches	1.
	9.25

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers						
Employees						
Other persons						
Totals						

Corporate name and address of the Company: Sarnia Street Railway Company, Limited, Sarnia, Ont.

Names and business addresses of principal officers: President, James Flintoft, Sarnia, Ont.; Vice-President, W. B. Collins, Sarnia, Ont.; Treasurer, G. E. Wadland, Sarnia, Ont.; General Counsel, Hanna, LeSueur & McKinley, Sarnia; Auditors, W. R. Paul and H. Ingram; General Manager, H. W. Mills.

Names and residence of Board of Directors: James Flintoft, Sarnia, Ont.; W. B. Collins, Sarnia, Ont.; J. D. Beatty, Sarnia, Ont.; Robt. McKenzie, Sarnia, Ont.; Randall Kenny, Sarnia, Ont.; Charles S. Ellis, Sarnia, Ont.; Thos. H. Smallman, London, Ont.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) J. FLINTOFT.
(Signed) G. E. WADLAND.
(Signed) H. W. MILLS.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,
H. GORMAN,
J. P.

TORONTO RAILWAY COMPANY.

GENERAL BALANCE SHEET 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks		
Electric line construction, including poles and wiring		
Total cost of railway owned		
Cost of Equipment:		
Cars and other rolling stock and vehicles		No details furnished.
Cost of electric equipment of same		
Other items of equipment		
Office furniture		
Total cost of equipment		
Cost of Land and Buildings:		
Land necessary for operation of railway		
Electric power stations, including equipment		
Other buildings necessary for operation of railway		
Total cost of land and buildings owned		$15,171,399 47

Cash		
Bills and accounts receivable		$77,610 00
Other current assets, special funds		1,712,054 85
Miscellaneous assets		
Material and supplies		260,844 25
Profit and loss balance deficit		7
Total assets		$17,221,908 57
Liabilities:		
Capital stock, common		$8,000,000 00
Funded debt		3,998,326 66
Real estate mortgages		70,000 00
Current Liabilities:		
Loans and notes payable		
Audited voucher and accounts		391,043 52
Miscellaneous current liabilities, wages		66,195 80
Accrued Liabilities:		
Dividend, 1st July		140,000 00
Tickets unredeemed		113,029 67
Interest accrued and not due		68,966 62
Special funds (reserves)		418,932 37
Profit and loss account balance surplus		3,955,413 93
Total liabilities		$17,221,908 57
Capital Stock:		
Authorized by law, common		$12,000,000 00
Authorized by votes of Company		8,000,000 00
Outstanding		8,000,000 00
Number of stockholders		2,088

FUNDED DEBT.

Description Bonds	Rate Int.	Maturity Bonds	Amount of Bonds Outstanding	Interest paid During year
First Mortgage	4½	31st Aug. 1921	$3,398,326 66	$152,924 70
Underlying Debenture	6 per cent.	1914	600,000 00	36,000 00

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	114,824,464
Number carried per mile of main track operated	1,035,518
Number of car miles run	16,354,871
Average number of persons employed	2,356
Company commenced operation	

REPORT OF THE TORONTO RAILWAY COMPANY

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating	$4,590,245 05	
Less operating expenses	2,333,318 41	
Gross income over operating expenses		$2,256,926 64

Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	$188,924 70	
Dividend, 7% ($8,000,000)	560,000 00	
Taxes	54,834 17	
Payment to municipalities for franchise	737,837 93	
Total deduction from income		1,541,596 80
Surplus		$715,329 84
Earnings from Operation:		
From passengers carried	$4,549,160 88	
From rentals	640 00	
From advertising in cars	13,166 69	
From other sources	27,277 48	
Total gross earnings from operation		$4,590,245 05
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$84,283 21	
General office expenses and supplies	23,434 52	
Legal expenses	20,789 99	
Insurance	18,426 49	
		$146,934 21
Other General Expenses:		
Advertising, street sprinkling	$2,435 48	
Miscellaneous general expenses, stoves	4,767 97	
		7,203 45
Maintenance Roadway and Buildings	$5,293 78	
Repair roadbed and track	45,053 23	
Repair electric line construction	16,866 01	
Repair of buildings	17,962 57	
		85,175 59
Maintenance of Equipment:		
Superintendence	$16,302 61	
Steam electric plant	10,446 39	
Repairs, cars and other vehicles	140,443 91	
Repairs electrical equipment, cars	103,528 67	
Repairs of equipment, miscellaneous	33,117 54	
Provender and stabling	5,155 08	
		308,994 20
Transportation Expenses:		
Sundries	$154,449 07	
Cost of motive power	369,501 97	
Wages of persons conducting transportation	1,137,051 00	
Removal of snow and ice	4,210 98	
Damages for injuries to persons and to property.	112,365 06	
		1,777,578 08
Other Transportation Expenses:		
Cleaning and sanding	$4,489 84	
Car service expenses and supplies	.....	
Compressors	2,943 04	
		7,432 88
Total operating expenses		$2,333,318 41

DESCRIPTION OF EQUIPMENT

Description and Equipment	Equipped for Electric Power	Number Equipped	Total passenger Cars.	Equipped with Fenders	Equipped with Electric Heaters	Number of Motors
Box passenger cars	260	.....	.....	762	620	Stoves
Open passenger cars	201	.....	.....			
Combination	284	.....	.....			
Totals	745	.....	.....	.....	.....	.....
Cars—other service						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow plows, sweepers (16)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT

Highway vehicles:—1 sleigh, 6 carts,	7
Tower wagon—sprinklers 8, freight cars 10, compressor 1	19
Wagons (11), cycles (3) horses (10), repair wagons (2)	26

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	105,566
Length of sidings and switches	5,320
	110,886

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	201	5	501	5	702
Employees	.....	53	.....	74	.....	127
Other persons	.....	.....	12	64	12	64
Totals	.....	254	17	639	17	893

Corporate name and address of the Company: The Toronto Railway Company, King and Church Streets, Toronto.

Names and business addresses of principal officers: Sir Wm. Mackenzie, President, 1 Toronto Street, Toronto; Frederick Nicholls, Vice-President, King and Simcoe Streets, Toronto; James C. Grace, Treasurer, King and Church Streets, Toronto; McCarthy, Osler, Hoskin & Harcourt, General Counsel, Home Life Building, Toronto; Clarkson & Cross, Auditors, Scott and Wellington Streets, Toronto; Robert J. Fleming, General Manager, King and Church Streets, Toronto; James Gunn, Superintendent, King and Church Streets, Toronto.

Names and residence of Board of Directors: Sir Wm. MacKenzie, Toronto; Frederic Nicholls, Toronto; George A. Cox, Toronto; Willmott D. Matthews, Toronto; Henry M. Pellatt, Toronto; Rodolphe Forget, Montreal; James Gunn, Toronto.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) Jas. C. Grace, *Treasurer.*
(Signed) Jas. Gunn, *Superintendent.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,

J. B. Owen,
J. P. or Com'r.

TORONTO SUBURBAN RAILWAY COMPANY.

General Balance Sheet, 30th June, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks	.....	
Electric line construction, including poles and wiring	.....	
Total cost of railway owned	.....	
Cost of Equipment:		
Cars and other rolling stock and vehicles	.....	
Cost of electric equipment of same	.....	
Other items of equipment	.....	
Office furniture	.....	
Total cost of equipment	.....	
Cost of Land and Buildings:		
Land necessary for operation of railway	.....	
Electric power stations, including equipment	.....	
Other buildings necessary for operation of railway	.....	
Total cost of land and buildings owned	.....	$203,569 16
Cash	$241 16	
Bills and accounts receivable	4,549 33	
Other current assets	1,013 00	
Miscellaneous assets	5,546 13	$11,349 62
Material and supplies	.....	
Profit and loss balance deficit	.....	$720 14
Total assets	.....	$215,638 92
Liabilities:		
Capital stock	.....	$80,000
Funded debt	.....	$140,000 00
Current Liabilities:		
Loans and notes payable	$105,941 44	
Audited voucher and accounts	21,946 44	
Miscellaneous current liabilities	7,751 04	
		$135,638 92
Accrued Liabilities:		
Interest accrued and not due	.....	
Profit and loss account balance surplus	.....	
Total liabilities	.....	$215,668 92

Capital Stock:		
Authorized by law	$1,000,000 00	
Authorized by votes of Company	80,000 00	
Outstanding	80,000 00	
Number of stockholders	6	

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	1,255,377
Number carried per mile of main track operated	137,264
Number of car miles run	234,128
Average number of persons employed	36
Company commenced operation	.....

REPORT OF THE TORONTO AND SUBURBAN RAILWAY COMPANY.

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:		
Gross earnings from operating	$63,733 41	
Miscellaneous income	295 84	
		$64,029 25
Less operating expenses	.....	40,946 49
Gross income over operating expenses	.....	$23,082 76
Charges Upon Income:		
Light and power	$3,072 45	
Interest on funded debt	6,085 97	
Crossings, etc.	1,051 88	
Taxes	1,017 85	
Payment to municipalities for franchise	.....	
Total deduction from Income	.....	$11,228 15
Surplus or deficit	.....	$11,854 61
Earnings from Operation:		
From passengers carried	$53,967 12	
From power and current	9,342 67	
From advertising in cars	62 50	
From other sources	361 12	
Total gross earnings from operation	.....	$63,733 41
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	$3,632 50	
General office expenses and supplies	521 62	
Legal expenses	.....	
Insurance	1,081 68	
		$5,235 80

Other General Expenses:		
Advertising	.....	
Miscellaneous general expenses	$3,364 78	
		$3,364 78
Maintenance Roadway and Buildings:		
Repair roadbed and track	$6,045 40	
Repair electric line construction	228 27	
Repair of buildings	229 84	
		$6,503 51
Maintenance of Equipment:		
Repairs, cars and other vehicles	$1,388 32	
Repairs of electric equipment of cars	2,241 76	
Renewals of tools and machinery	940 17	
		$4,570 25
Transportation Expenses:		
Cost of motive power	$6,000 00	
Wages of persons conducting transportation	14,624 01	
Removal of snow and ice	73 93	
Damages for injuries to persons and to property	.....	
		$20,697 94
Other Transportation Expenses:		
Car service expenses and supplies	.....	
Cleaning, oiling and sanding tracks	$574 21	574 21
Total operating expenses	.....	$40,946 49

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	8	all	.....	8	6	.....
Open passenger cars	4	all	.....	4	2	.....
Total	12	all	12	12	8	.....
Cars other service: platform (1) Tool (1)						
Other cars (motor)	.....	.....	.....	.....	.....	.....
Snow sweeper (1)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	9.84
Length of sidings and switches	.42
	10.26

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed	Injured
Passengers	.....	.....	.....	.....	.....	.....
Employees	.....	.....	1	.....	1	.....
Other persons	.....	.....	.....	2	.....	2
Totals	.....	.....	1	2	1	2

Corporate name and address of the Company: Toronto Suburban Railway Company, West Toronto, Ont.

Names and business address of principal officers: President, Sir Wm. Mackenzie, Toronto; Vice-President, Allan H. Royce; Treasurer, George C. Royce; General Counsel, Royce & Henderson; Auditor, C. W. R. Postlethwaite; General Manager, George C. Royce.

Names and residence of Board of Directors: Sir Wm. Mackenzie, Toronto; Allan H. Royce, Toronto; J. Lorne Mitchell, Toronto; George C. Royce, Toronto; R. M. Horne Payne, London, England; Hon. F. H. Phippen, Toronto.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) ALLAN ROYCE.
G. C. ROYCE.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,
(Signed) A. W. BOYD,
J.P. or Com'r.

TORONTO AND YORK RADIAL RAILWAY COMPANY.

GENERAL BALANCE SHEET, 30TH JUNE, 1911.

Assets:		
Cost of Railway:		
Purchase price	$2,800,000 00	
Roadbed and tracks and right of way	858,122 74	
Electric line construction, including poles and wiring	191,155 01	
Engineering	400 00	
Total cost of railway owned		$3,849,677 75
Cost of Equipment:		
Cars and other rolling stock and vehicles	$217,273 68	
Cost of electric equipment of same	131,612 65	
Other items of equipment	8,889 16	
Office furniture	.....	
Total cost equipment		357,775 49
Cost of Land and Buildings:		
Land necessary for operation of railway	173,078 01	
Electric power stations, including equipment	40,582 05	
		213,660 06
Other buildings necessary for operation of railway	.....	1,372 64
Total cost of land and buildings owned	.....	

Cash	$3,698 68	
Bills and accounts receivable	85,873 81	
		$90,173 04
Other current assets	600 55	
Miscellaneous assets	59,008 72	
Material and supplies	47,524 50	
		106,533 22
Profit and loss balance deficit		
Total assets		$4,619,192 20

Liabilities:

Capital stock	$2,000,000 00	
Funded debt	1,640,000 00	
Mortgages	12,550	
Current Liabilities:		
Loans and notes payable	$741,909 39	
Audited voucher and accounts	23,434 95	
Miscellaneous current liabilities, including outstanding tickets	6,627 51	
		$771,971 85
Accrued Liabilities:		
Interest accrued and not due		20,499 99
Contingent account		12,234 11
Profit and loss account balance surplus		161,936 25
Total liabilities		$4,619,192 20

Capital Stock:

Authorized by law	$2,000,000 00
Authorized by votes of Company	2,000,000 00
Outstanding	2,000,000 00
Number of stockholders	Toronto Railway Company

FUNDED DEBT.

Description Bonds.	Rate Interest.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
First Mortgage				

VOLUME OF TRAFFIC, ETC.

Number of paying passengers carried during year	4,136,796
Number carried per mile of main track operated	57,114
Number of car miles run	1,118,000
Average number of persons employed	300
Company commenced operation	

REPORT OF THE TORONTO AND YORK RADIAL RAILWAY COMPANY

FOR THE YEAR ENDING 30TH JUNE, 1911.

General Exhibit:

Gross earnings from operating		$424,532 89
Less operating expenses		249,607 84
Gross income over operating expenses		$174,925 05
Charges upon Income:		
Accrued during year	.....	
Interest on funded debt	81,249 99	
Interest on unfunded debt and loans	31,242 56	
Taxes	4,918 56	
Payment to municipalities for franchise	.....	
		117,411 11
Total deduction from income		
Surplus		$57,513 94

Earnings from Operation:

From passengers carried	$353,352 71	
From mails	2,182 92	
From advertising in cars	837 50	
From other sources, freight, etc.	68,159 76	
Total gross earnings from operation		$424,532 89

Expenses of Operation:

General Expenses:		
Salaries of officers and clerks	$11,903 75	
General office expenses and supplies	1,006 05	
Legal expenses	491 94	
Insurance	1,967 87	
		$15,369 61
Other General Expenses:		
Advertising	.....	
Miscellaneous general expenses	$20,322 88	
		20,322 88
Maintenance Roadway and Buildings:		
Repair roadbed and track, etc.	$18,692 38	
Repair electric line construction	3,388 65	
Repair of buildings	1,755 34	
		23,836 37
Maintenance of Equipment:		
Repairs, cars and other vehicles	$15,761 93	
Repairs of electric equipment of cars	15,492 76	
Renewals of tools and machinery and stabling	13,695 00	
		44,949 69
Transportation Expenses:		
Cost of motive power	$56,061 49	
Wages of persons conducting transportation	69,866 93	
Removal of snow and ice	7,568 11	
Damages for injuries to persons and to property	11,571 82	
		145,068 35
Other Transportation Expenses:		
Car service expenses and supplies	$60 94	
Cleaning, oiling and sanding tracks	.....	
		60 94
Total operating expenses		$249,607 84

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total Passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box passenger cars	37	.....	.....	.....	38	.....
Open passenger cars	4	.....	.....	.....	.....	.....
Total	41	.....	.....	.....	.....	.....
Cars—other service:						
Other cars (motor) official (1)	.....	.....	.....	.....	.....	.....
Snow plows (4) Baggage (8)	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles, carts, snow sleds	9
Tower wagon, horses (8)	.....
Tip carts, motor trucks (3), auto (1)	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed at single track	72.43
Length of sidings and switches	8.62
	81.05

ACCIDENTS TO PERSONS.

Killed and injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers	.....	.....	.....	1	.....	1
Employees	.....	.....	.....	.....	.....	.....
Other persons	1	.....	4	11	5	11
Totals	1	.....	4	12	5	12

Corporate name and address of the Company: Toronto and York Radial Railway Company.

Names of principal officers: Sir Wm. Mackenzie, President; Frederic Nicholls, Vice-President; J. C. Grace, Treasurer; J. M. Smith, Auditor; W. H. Moore, General Manager; Charles L. Wilson, Assistant General Manager.

Names and addresses of Board of Directors: Sir Wm. Mackenzie, Frederic Nicholls, J. C. Grace, James Gunn, Hon. Geo. A. Cox, W. D. Matthews, Sir Henry M. Pellatt.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) Jas. Gunn, *Director.*
(Signed) W. H. Moore, *General Manager.*

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is to the best of their knowledge and belief true.

Before me,

(Signed) R. H. M. Temple, J.P.

THURLOW RAILWAY COMPANY.

General Balance Sheet, 31st December, 1911.

Assets:		
Cost of Railway:		
Roadbed and tracks		$32,225 66
Electric line construction, including poles and wiring.		
Total cost of railway owned		
Cost of Equipment:		
Cars and other rolling stock and vehicles		$25,224 04
Cost of electric equipment of same		
Other items of equipment		
Office furniture		
Total cost of equipment		
Cost of Land and Buildings:		
Land necessary for operation of railway		
Electric power stations, including equipment		
Other buildings necessary for operation of railway..		$1,013 40
Total cost of land and buildings owned		
Cash		
Bills and accounts receivable		$4,749 71
Other current assets		
Miscellaneous assets		
Material and supplies		
Profit and loss balance deficit		
Total assets		$63,212 81
Liabilities:		
Capital stock		$25,000 00
Funded debt		
Current Liabilities:		
Loans and notes payable		
Audited voucher and accounts		
Miscellaneous current liabilities		
Accrued Liabilities:		
Interest accrued and not due		
Profit and loss account balance surplus		$38,212 81
Total liabilities		$63,212 81

Capital Stock:	
Authorized by law	$50,000 00
Authorized by votes of Company	.....
Outstanding	25,000 00
Number of stockholders	.....

FUNDED DEBT.

Description Bonds.	Rate Int.	Maturity Bonds.	Amount of Bonds Outstanding.	Interest paid during year.
.....	.....	.....	.....	.....

VOLUME OF TRAFFIC, ETC

Number of paying passengers carried during year	.....
Number carried per mile of main track operated	.....
Number of car miles run	.....
Average number of persons employed	.....
Company commenced operation	.....

REPORT OF THE THURLOW RAILWAY COMPANY.

FOR THE YEAR ENDING 31ST DECEMBER, 1911.

General Exhibit:		
Gross earnings from operating	$41,950 00	
Less operating expenses	16,082 12	
Gross income over operating expenses	.....	$25,867 88
Charges Upon Income:		
Accrued during year	.....	
Interest on funded debt	.....	
Interest on unfunded debt and loans	.....	
Taxes	.....	
Payment to municipalities for franchise	.....	
Total deduction from Income	.....	
Surplus or deficit	.....	
Earnings from Operation:		
From passengers carried	.....	
From freight	.....	$41,950 00
From advertising in cars	.....	
Total gross earnings from operation	.....	$41,950 00
Expenses of Operation:		
General Expenses:		
Salaries of officers and clerks	.....	
General office expenses and supplies	.....	
Legal expenses	.....	
Insurance	.....	
Other General Expenses:		
Advertising	.....	
Miscellaneous general expenses	.....	

Maintenance Roadway and Buildings:		
Repair roadbed and track	$5,017 19	
Repair electric line construction	.....	
Repair of buildings	.....	
Maintenance of Equipment:		
Repairs, cars and other vehicles	.....	
Repairs of electric equipment of cars	$1,385 23	
Renewals of tools and machinery	.....	
Transportation Expenses:		
Cost of motive power, fuel	$3,736 53	
Wages of persons conducting transportation	5,772 44	
Removal of snow and ice	.....	
Damages for injuries to persons and to property	.....	
Other Transportation Expenses:		
Car service expenses and supplies	$170 73	
Cleaning, oiling and sanding tracks	.....	
Total operating expenses	.....	$16,082 12

DESCRIPTION OF EQUIPMENT.

Description of Equipment.	Equipped for Electric Power.	Number Equipped.	Total passenger Cars.	Equipped with Fenders.	Equipped with Electric Heaters.	Number of Motors.
Box cars (21), locomotives (2)	21	.....	.....	.....	.....	.....
Open cars (16), coal	16	.....	.....	.....	.....	.....
Total	37	.....	.....	.....	.....	.....
Cars other service—						
Other cars (Motor)	.....	.....	.....	.....	.....	.....
Snow plows	.....	.....	.....	.....	.....	.....

MISCELLANEOUS EQUIPMENT.

Highway vehicles	.....
Tower wagon	.....
Tip carts	.....

RAILWAY OWNED AND OPERATED.

	Miles.
Length of railway line computed as single track	2.671
Length of sidings and switches	2.766
	5.437

ACCIDENTS TO PERSONS.

Killed and Injured.	From causes beyond their own control.		From their own carelessness.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Passengers						
Employees						
Other persons						
Totals						

Corporate name and address of the Company: Thurlow Railway Company.

Names and business addresses of principal officers: President, F. P. Jones; Treasurer, H. L. Doble.

Correspondence should be addressed to: H. L. Doble, Sec-Treas., Canada Cement Co., Ltd., Montreal.

Names and residence of Board of Directors: F. P. Jones, Montreal, Que.; H. L. Doble, Montreal, Que.; C. C. Ballantyne, Montreal, Que.; G. E. Drummond, Montreal, Que.; A. C. Bedford Jones, Montreal, Que.

We hereby certify that the statements contained in foregoing report are full, just and true.

(Signed) S. K. DOBLE, Treas.

Then personally appeared the above named and severally made oath that the foregoing certificate by them subscribed is, to the best of their knowledge and belief, true.

Before me,

.....

J.P. or Com'r.

ELECTRIC RAILWAYS.

Capital, Liabilities, and Assets, June 30th, 1911.

Name of Railway.	Capital subscribed.	Capital paid up.	Bonds outstanding.	Other liabilities.	Total liabilities.	Total assets.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Berlin & Waterloo	.....	.....	114,152 84	33,119 15	147,271 99	147,271 99
Berlin & Bridgeport	17,400 00	17,400 00	2,400 00	14,673 92	34,473 92	34,743 92
*Brantford Street Railway	.....	.....	.....	.....	.....	.....
Cornwall Street	200,000 00	200,000 00	.....	30,199 51	230,199 51	230,199 51
Galt, Preston & Hespeler	100,000 00	31,310 00	601,852 47	259,816 46	892,978 93	892,978 93
*Grand Valley	1,100,000 00	1,100,000 00	688,800 00	.....	1,788,800 00	1,788,800 00
Guelph Radial	.....	.....	103,775 19	.....	103,775 19	124,585 93
Hamilton & Dundas	100,000 00	100,000 00	100,000 00	158,773 30	358,773 30	358,773 30
Hamilton Street	205,000 00	205,000 00	500,000 00	270,812 97	975,812 97	975,812 97
Hamilton, Grimsby & Beamsville	235,000 00	235,000 00	150,000 00	61,727 49	446,727 49	446,727 49
Hamilton Radial	111,150 00	111,150 00	1,160,000 00	.....	1,271,150 00	1,271,150 00
Huntsville & Lake of Bays	50,000 00	27,800 00	.....	.....	27,800 00	27,800 00
International Transit Co	150 000 00	150,000 00	290,000 00	129,420 63	569,420 63	529,420 63
Kingston, Portsmouth & Cataraqui	83,100 00	83,100 00	.....	106,910 00	106,910 00	100,000 00
London Street	750,000 00	552,000 00	575,000 00	102,965 83	1,229,965 83	1,229,965 83
Niagara Falls & Park River	925,000 00	925,000 00	1,073,000 00	.....	1,998,000 00	1,998,000 00
Ottawa Street	1,247,700 00	500,000 00	500,000 00	.....	1,747,700 00	1,747,700 00
Peterboro' Radial	100,000 00	100,000 00	50,000 00	37,242 32	187,242 32	187,242 32
Port Arthur & Fort William	.....	.....	838,147 20	101,065 01	939,212 21	939,212 21
Sandwich, Windsor & Amherstburg	297,000 00	297,000 00	490,000 00	278,521 57	1,065,521 57	1,065,521 57
Midland Terminal	250,000 00	250,000 00	.....	27,321 72	277,321 72	277,321 72
Sarnia Street	90,000 00	90,000 00	.....	116,712 21	206,712 21	206,712 21
St. Thomas Street	.....	.....	57,428 29	17,696 01	75,124 30	75,124 30
Toronto Street	8,000,000 00	8,000,000 00	3,998,326 66	5,223,581 91	17,221,908 57	17,221,908 57
Toronto Suburban	80,000 00	80,000 00	.....	135,638 92	215,638 92	215,638 92
Toronto & York Radial	2,000,000 00	2,000,000 00	1,640,000 00	979,192 20	4,619,192 20	4,619,192 20
Thurlow Railway Co	.....	.....	.....	.....	.....	.....
*Woodstock, Thames Valley & Ingersoll	.....	.....	.....	.....	.....	.....
	16,011,350 00	14,974,760 00	12,932,882 65	8,085,391 13	36,737,633 78	36,711,804 52

*These roads are being operated by the Grand Valley Railway.

ELECTRIC RAILWAYS.

Gross and Net Earnings for Year ending June 30th, 1911.

Name of Railway.	Receipts from passenger fares.	Receipts from freight.	Receipts from mail service & express.	Receipts from other sources.	Total receipts.	Total expenses.	Surplus.	Deficit.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Berlin & Waterloo	32,607 02	.....	1,178 51	4,313 54	38,090 07	37,908 30	190 77	.....
Berlin and Bridgeport	7,029 26	.....	115 38	129 50	7,274 14	6,764 79	509 35	.....
*Brantford Street	.....	.....	.....	.....	.....	.....	.....	.....
Cornwall Street	16,620 75	9,450 84	.....	3,062 62	29,134 21	22,212 35	6,921 86	.....
Galt, Preston and Hespeler	76,013 88	77,561 05	1,875 22	7,891 09	163,341 24	97,789 55	65,551 69	.....
*Grand Valley	81,153 00	4,455 31	.....	2,324 58	87,932 89	79,824 40	8,108 49	.....
Guelph Radial	28,338 16	1,070 85	.....	958 38	30,367 39	30,367 39	1,960 65	.....
Huntsville & Lake of Bays	1,825 45	2,692 44	25 00	.....	4,542 89	4,634 94	.....	92 05
Hamilton & Dundas	49,887 74	788 46	148 00	2,673 44	53,497 64	49,813 29	3,684 35	.....
Hamilton Street Railway Co.	405,030 57	.....	.....	5,404 08	410,434 65	323,789 48	86,645 17	.....
Hamilton, Grimsby & Beamsville	78,679 42	35,209 28	550 00	4,905 53	119,344 23	117,906 55	1,437 68	.....
Hamilton Radial	152,985 44	.....	.....	.....	152,985 44	174,953 30	.....	21,967 86
International Transit Co.	68,018 69	.....	.....	8,202 37	76,221 06	55,344 02	20,877 04	.....
Kingston, Portsmouth & Cataraqui	30,959 60	.....	.....	1,139 63	32,099 23	36,597 10	.....	4,497 87
London Street Railway	261,200 43	.....	.....	5,615 19	266,815 62	252,119 65	14,695 97	.....
Niagara Falls Park & River	151,249 57	.....	.....	18,225 95	169,475 52	115,235 57	54,239 95	.....
Ottawa Street Railway	.....	.....	.....	.....	787,573 27	532,311 64	255,261 63	.....
Peterboro' Radial	36,380 20	.....	.....	680 03	37,060 23	32,839 41	4,220 82	.....
Port Arthur and Fort William	140,058 31	12,226 50	379 16	3,584 44	156,248 41	136,297 18	19,951 23	.....
Sandwich, Windsor & Amherstburg	187,028 74	.....	800 00	37,150 92	224,979 66	128,609 25	96,370 41	.....
Midland Terminal	.....	20,902 50	.....	.....	20,902 50	25,508 24	.....	4,605 74
Sarnia Street	35,351 47	6,040 21	1,555 00	3,421 92	46,368 60	40,728 73	5,639 87	.....
St. Thomas Street	14,594 96	.....	.....	1,748 08	16,343 04	24,828 25	.....	8,485 21
Toronto Street	4,549,160 88	.....	.....	41,084 17	4,590,245 05	3,874,915 21	715,329 84	.....
Toronto Suburban	53,967 12	.....	.....	10,062 13	64,029 25	52,174 64	11,854 61	.....
Toronto & York Radial	353,352 71	68,159 76	2,182 92	837 50	424,532 89	367,018 95	57,513 94	.....
Thurlow Railway Company	.....	.....	.....	.....	.....	.....	.....	.....
*Woodstock, Thames Valley & Ingersoll	.....	.....	.....	.....	.....	.....	.....	.....
	6,811,493 37	238,557 20	8,809 19	163,415 09	8,009,848 12	6,620,492 18	1,430,965 32	39,648 73

*These roads are being operated by the Grand Valley Railway.

ELECTRIC RAILWAYS.

Analysis of Operating Expenses for Year ending June 30th, 1911.

Name of Railway.	Car miles run.	Maintenance of way and buildings.	Cost of motive power.	Maintenance of cars and equipment	General operating expenses.	Charges on income, including interest.	Total expenses.	Cost of operation per car mile.
		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$
Berlin & Waterloo	98,992	1,864 82	6,177 06	4,170 37	14,298 69	11,397 36	37,908 30	38.3
Berlin and Bridgeport	32,000	207 50	1,685 96	.....	3,873 59	997 74	6,764 79	21.1
*Brantford Street	.....	.....	.....	.....	.....	.....	.....	.....
Cornwall Street	286,466	1,020 83	2,764 64	3,124 45	15,302 43	.....	22,212 35	07.5
Galt, Preston & Hespeler	275,769	13,005 34	20,329 04	10,846 22	47,431 56	6,177 39	97,789 55	35.4
*Grand Valley Railway	333,417	4,787 00	20,534 60	6,405 82	45,581 49	2,515 49	79,824 40	23.9
Guelph Radial Railway	192,500	1,764 43	4,665 13	4,771 92	12,757 18	4,448 08	28,406 74	14.7
Huntsville & Lake of Bays	1,350	548 06	443 02	250 00	1,654 61	1,739 25	4,634 94	34.9
Hamilton & Dundas Railway	115,434	4,555 60	4,470 67	2,263 04	23,424 34	15,099 64	49,813 29	43.1
Hamilton Street Railway	1,652,498	11,734 55	42,451 63	40,172 62	161,246 22	68,184 46	323,789 48	19.6
Hamilton, Grimsby & Beamsville	347,054	14,873 84	13,163 20	14,040 88	50,308 71	25,522 83	117,909 46	33.9
Hamilton Radial Railway	513,712	.....	.....	.....	.....	.....	.....	.....
International Transit Co.	314,806	3,195 72	6,999 88	4,548 22	23,989 44	16,610 76	55,344 02	37.4
Kingston, Portsmouth & Cataraqui	199,680	3,579 41	3,494 04	6,338 48	18,041 43	4,571 87	36,025 23	18.1
London Street	1,432,858	21,751 01	35,010,81	28,963 45	96,928 40	69,475 98	252,129 65	17.6
Niagara Falls Park & River	333,195	24,075 92	5,971 64	4,691 33	47,101 08	33,395 60	115,235 57	34.5
Ottawa Street	4,171,449	.....	.....	.....	.....	.....	.....	.....
Peterboro' Radial	255,218	1,683 30	1,500 00	3,926 33	21,597 28	4,132 50	32,839 41	12.8
Port Arthur & Fort William	654,015	10,239 19	19,743 10	18,460 52	49,083 20	38,771 17	136,297 18	20.8
Sandwich, Windsor & Amherstburg	875,040	15,442 83	13,257 73	10,884 52	54,824 17	34,200 00	129,609 25	14.8
Midland Terminal	.....	.....	.....	.....	.....	.....	.....	.....
Sarnia Street	143,990	.....	5,670 11	2,654 90	22,579 32	9,824 40	40,728 73	28.3
St. Thomas Street	281,700	1,859 98	4,200 00	2,437 96	16,330 01	.....	24,828 25	08.81
Toronto Street	16,354,871	85,175 59	369,501 97	308,994 20	1,569,646 65	1,541,596 80	3,874,915 21	23.7
Toronto and Suburban	234,128	6,503 51	6,000 00	4,570 25	23,872 73	11,228 15	52,174 64	22.3
Toronto & York Radial	1,118,000	23,836 37	56,061 49	44,949 69	124,760 29	117,411 11	367,018 95	32.8
*Thurlow Railway	.....	.....	.....	.....	.....	.....	.....	.....
*Woodstock, Thames Valley & Ingersoll	.....	.....	.....	.....	.....	.....	.....	.....
	30,018,142	251,704 80	644,095 72	527,465 17	2,444,632 82	2,017,300 58	5,886,199 39	

* These roads are being operated by the Grand Valley Railway Co.

ELECTRIC RAILWAYS.

Comparative summary of length of road, car mileage, number of passengers carried for years ending 30th June, 1910, and 30th June, 1911.

Name of Railway.	Length of track switches and turn outs.		Car mileage.		Passengers carried.	Passengers carried.
	1910	1911	1910	1911	1910	1911
Berlin & Waterloo	5.40	4.00	90,408	98,992	688,304	774,941
Berlin & Bridgeport		3.20	not given	32,000	145,587	145,587
*Brantford Street	.....	.....	.....	.....	.....	.....
Cornwall Street	6.50	6.50	192,445	286,466	357,116	340,677
Galt, Preston & Hespeler	26.42	26.42	219,977	275,769	923,167	994,568
*Grand Valley	40.43	40.24	358,593	333,417	1,026,354	1,095,488
Guelph Radial	6.33	6.33	192,500	192,500	605,476	668,952
Huntsville & Lake of Bays Railway	1.00	1.00	1,100	1,350	12,667	14,000
Hamilton & Dundas	7.25	6.98	111,176	115,434	511,344	595,896
Hamilton Street	22.29	22.29	1,647,524	1,652,498	9,123,699	10,625,054
do Grimsby & Beamsville	23.00	22.60	291,212	347,054	508,091	622,915
Hamilton Radial	25.00	33.69	472,236	513,712	1,135,291	1,442,551
International Transit	3.90	3.90	305,170	314,806	1,159,789	1,650,540
Kingston, Portsmouth & Cataraqui	8.00	8.00	199,680	199,680	1,368,258	776,736
London Street Railway	33.44	33.25	1,421,735	1,432,858	6,718,167	7,210,643
Niagara Falls, Park & River	24.11	24.11	350,512	333,195	1,295,485	1,331,645
Ottawa Street	44.54	47.42	3,924,542	4,171,449	15,987,849	23,716,883
Peterboro' Radial	5.24	5.24	257,063	255,218	710,853	810,124
Port Arthur & Fort William	19.25	22.33	491,766	654,015	2,832,426	3,407,918
Sandwich, Windsor & Amherstburg	36.06	36.06	854,794	875,040	3,031,244	3,428,634
Midland Terminal	4.00	4.00	.....	.....	.....	.....
Sarnia Street	9.25	9.25	143,990	143,990	723,566	800,210
St. Thomas Street	7.70	7.70	267,502	281,700	353,026	534,562
Toronto Street	107.71	110.88	15,391,301	16,354,871	103,480,724	114,824,464
Toronto and Suburban Railway	10.26	10.26	227,113	234,128	1,047,191	1,309,965
Toronto & York Radial	81.05	81.05	1,106,215	1,118,000	3,794,219	4,136,796
Thurlow Railway Co	5.43	5.43	not given	.....	.....	.....
*Woodstock, Thames Valley & Ingersoll Railway	.....	.....	.....	.....	.....	.....
Totals	563.56	582.13	28,518,554	30,218,142	157,539,893	181,259,748

* Grand Valley System operates Brantford Street Ry., 8.95 miles, Woodstock and Thames Valley, 11.50 miles; Grand Valley Ry., 20.75: 41.20 miles.

PUBLIC UTILITIES

Electric Light and Power Works, Municipality of Almonte.

Plant acquired and installed, 1901.
Total assessed valuation of real estate in municipality, $875,195.
Amount of par bonds issued during year for lighting and power purposes, none.
Amount of outstanding debentures, 31st December, 1910, $33,073.95.
Motive power. Water.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number of municipal arc lamps, 16.
Nominal candle power. Not given.
Number incandescent lamps supplied:
Municipal, 40 32 C.P.
Commercial, 3,200 16 C.P.
Nominal candle power.
Amount of power supplied to customers, K.W.
Price charged for com. arc lamps, 18, 35, 9.
Price charged for com. incandescent lamps, 16 C.P., 32, 8.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp, $75.
Cost per public incandescent lamp, $3.90 per year; $1.80 per year for 16 C.P. domestic.

Operating Expenses.

Production:		
Salaries, production	$1,568 90	
Labour, production.	226 79	
Fuel	5 00	
Oil, waste and sundries	.....	
Water	.....	
Water rights	.....	
Repairs, buildings and structures ..	.....	
Repairs, motive power	.....	
Repairs, electric apparatus	100 00	
Station expense ...	70 00	
Power purchased ..	.....	
		$1,970 69
Distribution:		
Salaries, distribution	.....	
Sub-station labour and expense	.....	
Distribution expense	$200 00	
Incandescent lamp renewals	.....	
Wiring and jobbing	845 16	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	147 24	
Repairs, subways and cables	.....	
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
		$1,192 40
General Expense:		
Office salaries	$150 00	
Office expense	28 26	
Registering and collecting	.....	
Legal expense	.....	
General expense ...	.....	
Advertising	80 30	
Leaseholds, rentals, etc.	.....	
Damages	.....	
Depreciation	.....	
		$258 56
Total operating expenses..		$3,421 65

Gross earnings commercial incandescent lights		$5,020 68
Public buildings		50 00
Street arc lights		1,200 00
Earnings from operation.....		$6,270 68
Other sources of income		1,131 91
Operating expenses		$7,402 59
Deductions from net income..		3,421 65
		$3,980 94
Interest on debenture debt	$1,200 00	
Sinking fund	998 49	
Reconstruction reserve fund	.....	
Other deductions ...	.....	
		$2,198 49
Surplus		$1,782 45
Value of plant and equipment.		$38,000 00
Debentures current.	$33,073 95	
Less sinking fund..	7,504 00	
		$25,569 95

Electric Light and Power Works, Municipality of Aylmer.

Plant acquired or installed, 1897.
Total assessed valuation of real estate in municipality, $824,764.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910. None.
Motive power. Steam.
Number com. arc. lamps supplied, 9.
Nominal candle power, 1,600 C.P.
Number municipal arc lamps, 12.
Nominal candle power, 1,600 C.P.
Number incandescent lamps supplied:
Municipal, 250.
Commercial, 3,000.
Nominal candle power, 16 C.P.
Amount of power supplied to customers K.W.
Price charged for com. arc lamps, 12c. K.W.H.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $70.50, estimated.
Cost per public incandescent lamp, $11.88 estimated.

Gross earnings from sale of power and lighting:		
Commercial arc and incandescent lighting	$6,384 64	
Street arc lights	900 00	
Street incandescent lights	300 00	
Municipal power service, public buildings	2,000 00	
Less operating expenses	300 00	
		$9,884 64
		6,385 33
		$3,499 31
Deductions from net income		
Interest on debenture debt, say		$450 00
Sinking fund		
Reconstruction reserve fund		
Other deductions		
Surplus		$3,049 31
Assets—Plant, real estate, building, equipment, etc.		$25,000 00
Liabilities — Debentures current		11,936 31
Operating Expenses:		
Salaries, production	$1,584 82	
Wages, production		
Fuel	4,431 89	
Oil, waste and sundries	368 62	
Repairs		
General expenses.		
Depreciation		
Total operating expenses.		$6,385 33

Electric Light and Power Works, Municipality of Barrie.

Plant acquired or installed, 1888; purchased, 1898.
Total assessed valuation of real estate in municipality, $2,985,045.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $58,471.91.
Motive power. Steam.
Number com. arc lamps supplied, 3.
Nominal candle power, 500 C.P.
Number municipal arc lamps, 53.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied:
Commercial, 4,500 16.
Municipal, 64, 32.
Amount of power supplied to customers K.W. Not given.
Price charged for com. arc lamps. Graduated scale.
Price charged for com. incandescent lamps. Graduated scale.
Price charged for electric power per K.W. Graduated scale.
Cost per public arc lamp, $45.
Cost per public incandescent lamp.

Gross Earnings from Sale of Power and Lighting:		
Com. incandescent lights, flat	$172 53	
Com. incandescents and arcs, meter.	15,562 11	
Street arcs	2,346 25	
Incandescents	1,185 00	
Commercial power service, etc.	1,164 27	
		$20,430 16
Fines, interest, etc.		453 59
		$20,883 75
Operating expenses		13,090 75
		$7,793 00
Interest on debenture debt	$2,645 00	
Debenture paid	2,951 93	
		$5,596 93
Reconstruction reserve fund.		
Other deductions		
Surplus		$2,196 07
Assets—Plant, real estate, building equipment, etc.		$84,658 90
Liabilities — Debentures current		58,471 91

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BARRRIE.—(*Continued.*)

Operating Expenses.

Production:		
Salaries, production	$900 00	
Labour, production	2,155 00	
Fuel	7,504 90	
Oil, waste and sundries	270 35	
Water	.....	
Water rights	.....	
Repairs, buildings and structures	.....	
Repairs, motive power	113 64	
Repairs, electric apparatus	.....	
Station expense	146 09	
Power purchased	.....	
		$11,089 98
Distribution:		
Salaries, distribution	.....	
Sub-station labour and expense	.....	
Distribution expense	.....	
Incandescent lamp renewals	24 50	
Wiring and jobbing	185 25	
Operating and repairing street lamps	307 30	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	189 44	
Repairs, subways and cables	.....	
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps	79 05	
		$785 54
General Expense:		
Office salaries	$189 29	
Office expense	.....	
Registering and collecting	25 00	
Legal expense, insurance	191 90	
General expense	.....	
Advertising	474 76	
Leaseholds, rentals, etc.	31 75	
Damages	43 60	
Depreciation	258 93	
		$1,215 23
Total operating expenses		$13,090 75

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BERLIN.

Plant acquired or installed, 1903.
Total assessed valuation of real estate in municipality, $6,780,334.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $319,403.26.
Motive power. Steam.
Number com. arc lamps supplied, 15.
Nominal candle power, 2,000 C.P.
Number municipal arc lamps, 143.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied:
Muncipal, 14, 16 and 32 C.P.
Commercial, 12,000, 8 and 16 C.P.
Nominal candle power, 32.
Amount of power supplied to customers K.W. No record.
Price charged for com. arc lamps, 7½c. K.W.H. net.
Price charged for com. incandescent lamps, 16 C.P., $16; 32 C.P., $30.
Price charged for electric power per K.W. 1½c. to 5c. K.W.
Cost per public arc lamp, $70, established.
Cost per public incandescent lamp. Not given.

Operating Expenses.

Production:		
Salaries, production	$610 42	
Labour, production	6,499 88	
Fuel	18,424 64	
Oil, waste and sundries	3,354 85	
Water rights, demonstration	274 51	
Repairs, buildings and structures	56 40	
Repairs, motive power	1,004 60	
Repairs, electric apparatus	152 40	
Station expense	.....	
Power purchased	3,980 78	
		$34,358 48
Distribution:		
Salaries, distribution	$256 98	
Sub-station labour and expense	.....	
Distribution expense	152 39	
Incandescent lamp renewals	.....	
Wiring and jobbing	49 90	
Operating and repairing street lamps	1,103 48	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	147 03	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BERLIN.—(*Continued*).

Repairs, subways and cables	.....	
Repairs, meters...	315 67	
Repairs, transformers, etc. ...	15 04	
Repairs, commercial arc lamps..	.....	
		$2,040 49
General Expense:		
Office salaries	$1,487 18	
Office expense ...	150 96	
Insurance	625 97	
Legal expense ...	.....	
General expense..	.....	
Advertising	406 74	
Leaseholds, rentals, etc.	.....	
Damages	.....	
Depreciation	4,407 87	
		$7,078 72
Total operating expenses.		$43,477 69
Gross earnings from sale of power and lighting		$26,777 93
Street arc lights		9,926 32
Commercial power service.		12,976 64
Railway service		6,702 81
Other items		658 15
		$57,041 85
Less operating expenses		43,477 69
		$13,564 16
Deductions from net income.		.....
Interest on debenture debt.		$8,178 78
Sinking fund		.....
Reconstruction reserve fund.		.....
Other deductions		.....
Surplus		$5,385 38
Assets—Plant, real estate, building equipment, etc...		$226,970 36
Liabilities—Debentures current, including debentures issued for water works plant		319,403 26

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BLENHEIM.

Plant acquired or installed, 1900.
Total assessed valuation of real estate in municipality, $441,000.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $906.53.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power, 0.
Number municipal arc lamps, 21.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied:
Municipal, 100.
Commercial, 1,600.
Nominal candle power, 16 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps, 10c. K.W.H.
Price charged for com. incandescent lamps, $5.00 per year.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp, $35.00 per year.
Cost per public incandescent lamp, $5.00 per year.

Gross earnings from commercial, arc and incandescent, by meter		$3,001 60
From public buildings		136 00
From street arc lights		720 00
Sundries		35 00
		$3,892 60
Operating expenses		2,394 87
		$1,497 73
Deductions from net income ..		.....
Interest on debenture debt....		$43 17
Sinking fund		.....
Reconstruction reserve fund..		.....
Other deductions		.....
Surplus		$1,454 56
Assets:		
Plant and equipment		$10,000 00
Liabilities:		
Debentures current		906 53
Operating Expenses:		
Salaries, production	$900 00	
Wages, production.		
Fuel	800 00	
Oil, waste and sundries	100 00	
Repairs	.....	
General expenses...	594 87	
Depreciation		.....
Total operating expenses.		$2,394 87

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF PORCAYGEON.

Plant acquired or installed, 1906.
Total assessed valuation of real estate in municipality, $2,734.42.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $23,247.85.
Motive power. Water.
Number com. arc lamps supplied, 3.
Nominal candle power, 1,200 C.P.
Number municipal arc lamps, 19.

ELECTRIC LIGHT AND POWER WORKS. MUNICIPALITY OF BOBCAYGEON.—(*Continued.*)

Nominal candle power, 1,200 C.P.
Number incandescent lamps supplied: Municipal, 21.
Nominal candle power, 50 C.P.
Number incandescent lamps, com. 1,146, 16 C.P.
Amount of power supplied to customers K.W.
Price charged for com. arc lamps, $25.
Price charged for com. incandescent lamps, $2 flat 16 C.P.
Price charge for electric power per K.W. None.
Cost per public arc lamp. Not given.
Cost per public incandescent lamp. Not given.

Operating Expenses.

Production:		
Salaries, production.	$600 00	
Labour, production.	.....	
Fuel	84 35	
Oil, waste and sundries	12 00	
Water	.....	
Water rights	.....	
Repairs, buildings and structures ...	29 11	
Repairs, motive power	27 50	
Repairs, electric apparatus	55 00	
Station expense ...	.....	
Power purchased ..	.....	
		$757 96
Distribution:		
Salaries, distribution	$60 00	
Sub-station labor and expense	.....	
Distribution expense	49 92	
Incandescent lamp renewals	.....	
Wiring and jobbing	.....	
Operating and repairing street lamps	75 02	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	305 34	
Repairs, subways and cables	.....	
Repairs, meters ...	.....	
Repairs, transformers	86 36	
Repairs, commercial arc lamps	75 02	
		651 66
General Expense:		
Office salaries	50 00	
Office expense	22 08	
Registering and collecting	.....	
Legal expense	40 56	
		112 64
General expense		
Advertising	.....	
Leaseholds, rentals, etc.	.....	
Damages	.....	
Depreciation	.....	
Steam Heating Department:		
Total operating expenses.		$1,522 26
Gross earnings from sale of power and lighting	$2,757 85	
Less operating expenses	1,522 26	
		$1,235 59
Deductions from net income..		
Interest on debenture debt....		1,067 13
Sinking fund		
Reconstruction reserve fund..		
Other deductions		
Surplus or deficit		$168 46
Assets:		
Plant, real estate, building equipment, etc.		$26,500 00
Liabilities:		
Debentures current		$23,247 85

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BOTHWELL.

Plant acquired or installed, 1898.
Total assessed valuation of real estate in municipality, $206,000.
Amount at par of bonds issued during year for lighting and power purposes, none.
Amount of outstanding debentures, 31st December, 1910, $2,091.15.
Motive power, steam.
Number arc lamps supplied, municipal, 15.
Nominal candle power, 200 C.P.
Number incandescent lamps supplied, commercial, 500.
Nominal candle power, 16 C.P.
Amount of power supplied to customers, K.W. None.
Price charged for com. arc lamps, none.
Price charged for com. incandescent lamps, 35c. per month.
Price charged for electric power per K.W., none sold.
Cost per public arc lamp, $45.
Cost per public incandescent lamp, not given.

Gross earnings from sale of power and lighting:		
Commercial incandescents	$1,788 31	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BOTHWELL.—(*Continued.*)

Commercial arcs ..	684 00	
		$2,472 31
Sundries		110 00
		$2,582 31
Less operating expenses.....		1,931 07
		$651 24
Deductions from net income..		
Interest on debenture debt...		99 90
Sinking fund		
Reconstruction reserve fund..		
Other deductions		
Surplus		$551 34
Assets:		
Plant, real estate, building equipment, etc.		$6,200 00
Liabilities:		
Debentures current		$2,091 15
Operating Expenses:		
Production:		
Salaries, production		$730 00
Labor, production		
Fuel		892 97
Oil, waste and sundries		308 10
Water		
Water rights		
Repairs, buildings and structures		
Repairs, motive power		
Repairs, electric apparatus..		
Station expense		
Power purchased		
Distribution:		
Salaries, distribution		
Sub-station labor and expense		
Distribution expense		
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines....		
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
General Expense:		
Office salaries		
Office expense		
Registering and collecting..		
Legal expense		
General expense		
Advertising		
Leaseholds, rentals, etc.		
Damages		
Depreciation		
Steam Heating Department:		
Total operating expenses—Electric		$1,931 07

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BRACEBRIDGE.

Gross Earnings from Sale of Power and Lighting:		
Commercial arc and incandescents		$7,257 52
Public buildings		205 00
Street incandescents		1,000 00
Commercial power service..		8,025 50
		$16,488 02
Installation		1,153 97
		$17,641 99
Operating expenses		5,957 25
		$11,684 74
Deductions from net income...		
Interest on debenture debt ...		3,641 70
Sinking fund		
Reconstruction reserve fund ..		
Other deductions		
Surplus		$8,043 04
Assets:		
Plant, real estate, building equipment, etc.		$121,000 00
Liabilities:		
Debentures current		84,203 29
Plant acquired or installed, 1895.		
Total assessed valuation of real estate in municipality, $787,640.		
Amount at par of bonds issued during year for lighting and power purposes, $45,000.		
Amount of outstanding debentures, 31st December, 1910, $84,203.29.		
Motive power, water.		
Number com. arc lamps supplied, 16.		
Nominal candle power, 1,000 C.P.		
Number municipal arc lamps, 2.		
Nominal candle power, 1,000 C.P.		
Number incandescent lamps supplied—Municipal, 590, 8-16-32-50; Commercial, 5,600, 8-16-32.		
Nominal candle power,		
Amount of power supplied to customers, K.W., 1,000 H.P.		
Price charged for com. arc lamps, $25.50.		
Price charged for com. incandescent lamps, $1.60.		
Price charged for electric power per K.W.: $12.50, 10-hour; $15, 24-hour.		
Cost per public arc lamp, $17.50.		
Cost per public incandescent lamp, $1.50.		
Operating Expenses:		
Production:		
Salaries, production		$2,940 00

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BRACEBRIDGE.—(*Continued.*)

Labor, production ..	.....	
Fuel	.....	
Oil, waste and sundries	11 69	
Water	51 32	
Water rights	.....	
Repairs, buildings and structures ...	43 15	
		$3,046 16
Repairs, motive power	.....	
Repairs, electric apparatus	.....	
Station expense ...	.....	
Power purchased ..	.....	
Distribution:		
Salaries, distribution	$327 09	
Sub-station labor and expense	.....	
Distribution expense	.....	
Incandescent lamp renewals	143 30	
Wiring and jobbing.	1,252 12	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	.....	
Repairs, subways and cables	.....	
Repairs, meters	134 02	
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
		1,856 53
General Expense:		
Office salaries	$300 00	
Office expense	22 00	
Registering and collecting	.....	
Legal expense	.....	
General expense ..	102 09	
Advertising	.....	
Leaseholds, rentals, etc.	280 43	
Damages	.....	
Depreciation	350 04	
		1,054 56
Total operating expenses		$5,957 25

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BROCKVILLE.

Plant acquired or installed, 1900.
Total assessed value of real estate in municipality, $4,443,695.
Amount at par of bonds issued during year for lighting and power purposes, $50,000.
Amount of outstanding debentures, 31st December, 1910, $75,039.39.
Motive power . Steam.
Number com. arc lamps supplied, 16.
Nominal candle power, 1,200.
Number municipal arc lamps, 75.
Nominal candle power, 1,200.
Number incandescent lamps supplied. Municipal, 66; commercial, 10,000.
Nominal candle power, 40.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps, 10cts. K.W.H.
Price charged for com. incandescent lamps, 10cts. K.W.H.
Price charged for electric power per K.W. $2.10 K.W.
Cost per public incandescent lamp. Not given.
Cost per public arc lamp. Not given.

Operating expenses:		
Salaries, production	$2,345 00	
Labour, production .	328 43	
Fuel	4,767 78	
Oil, waste and sundries	524 72	
Water		
Water rights		
Repairs, buildings and structures ..	172 80	
Repairs, motive power	246 20	
Repairs, electric apparatus	127 00	
Station expense ...		
Power purchased ..	216 20	
		$8,728 13
Distribution:		
Salaries, distribution	$1,140 00	
Sub-station labour and expense		
Distribution expense	376 00	
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps	789 12	
Repairs, poles and lines	315 96	
Repairs, meters ...	85 22	
		$2,706 30
General expense:		
Office salaries	800 00	
Office expense	179 63	
General expense ..	943 16	
Depreciation	4,958 04	
		$6,880 83
Total operating expenses, electric		$18,315 26

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF BROCKVILLE.—(*Continued.*)

Gross earnings:		
Commercial arc lights	$468 00	
Commercial Incandescents	216 00	
Commercial incandescents and arc lights by meter	14,729 91	
Public buildings	802 00	
Street arc lights	4,668 00	
Street incandescents	1,452 00	
		$22,335 91
Operating expenses		18,315 26
		$4,020 65
Interest on debenture debt		1,997 93
Surplus		2,022 72
Assets, plants, etc.		103,255 43
Liabilities:		
Debentures current		$75,039 39

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF CHATHAM.

Plant acquired or installed, 1897.
Total assessed valuation of real estate in municipality, $5,185,258.
Amount at par of bonds issued during year for lighting and power purposes, $5,900.
Amount of outstanding debentures, 31st December, 1910, $21,075.62.
Motive power. Gas.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number municipal arc lamps, 134.
Nominal candle power.
Number incandescent lamps supplied. None.
Nominal candle power.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps. None.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp. $55.
Cost per public incandescent lamp. None.

Operating expenses:		
Salaries, production, Wages, production	$2,480 36	
Fuel	445,10	
Oil, waste and sundries	59 40	
Repairs	3,079 12	
		$6,063 98
Total operating expenses		$6,063 98

Gross earnings from sale of power and lighting. No revenue arc circuit for municipal lighting system.

Assets:	
Plant, real estate, building equipment, etc.	$23,500 00
Liabilities:	
Debentures current	21,075 62

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF COLLINGWOOD.

Plant acquired or installed, 1889, 1890.
Total assessed valuation of real estate in municipality. Not given.
Amount at par of bonds issued during year for lighting and power purposes, None.
Amount of outstanding debentures, 31st December, 1910. $20,000.00.
Motive power. Steam and gas.
Number com. arc lamps supplied, 12.
Nominal candle power, 800.
Number municipal arc lamps, 68.
Nominal candle power, 1,200 and 2,000.
Number incandescent lamps supplied. Municipal, 300, 16 C.P.; commercial, 8,500, 16 C.P.
Nominal candle power.
Amount of power supplied to customers K.W. 15 K.W.
Price charged for com. arc lamps, 10c. K.W.H.
Price charged for com. incandescent lamps, 10c. K.W.H.
Price charged for electric power per K.W.
Cost per public arc lamp, estimated, $47.28.
Cost per public incandescent lamp, estimated, $1.34.

Gross earnings:		
Commercial arcs, incandescents, street arc lights, public buildings		$18,103 16
Rent of meters		550 00
		$18,653 16
Operating expenses		11,876 77
		$6,785 39
Interest on debenture debt		2,387 89
Surplus		$4,397 50
Assets:		
Plant and equipment		$44,389 10
Liabilities:		
Debentures current		20,000 00
Production:		
Salaries, production	$2,350 13	
Fuel	3,279 87	
Oil, waste and sundries	271 65	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF COLLINGWWOOD.—(*Continued.*)

Repairs, motive power	169 29	
Repairs, electric apparatus	146 05	
Station expense	245 35	
Insurance	228 07	
		$6,690 41
Distribution:		
Salaries, distribution	841 22	
Distribution expense	93 73	
Operating and repairing street lamps	1,924 76	
		2,859 71
General expense:		
Office salaries	355 00	
Office expense	110 00	
General expense	423 78	
Depreciation	1,428 87	
		2,317 65
Total operating expenses.		$11,867 77

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF DRESDEN.

Plant acquired or installed.
Total assessed valuation of real estate in municipality. $496,745.
Amount at par of bonds issued during year for lighting and power purposes, None.
Amount of outstanding debentures, 31st December, 1910. $7,859.11.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power.
Number municipal arc lamps. None.
Nominal candle power. 16. C.P.
Number incandescent lamps supplied. Commercial, 1,400; municipal, 70.
Nominal candle power, 32 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps, 50c. per m. flat, 25c. per m. residence.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp.
Cost per public incandescent lamp, $12.32 C.P.

Production:		
Salaries, production	$877 13	
Fuel	1,569 31	
Oil, waste and sundries	236 01	
Repairs, buildings and structures	123 60	
Repairs, motive power	76 48	
Distribution:		
Repairs, poles and lines		46 82
General expense:		
Office salaries		50 00
Office expense		50 00
Depreciation		299 92
Total operating expenses.		$3,329 27
Gross earnings from sale of power and lighting:		
Commercial incandescents	$4,022 24	
Street incandescents	800 00	
Sundries	25 26	
		$4,847 50
Less operating expenses		3,329 27
		$1,518 23
Deductions from net income		
Cost of smoke stack.	$430 22	
Interest on debenture debt	334 28	
		764 50
Surplus		$753 73
Assets:		
Plant, real estate, building equipment, etc.		$14,500 00
Liabilities:		
Debentures current		8,112 91

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF DUNDALK.

Plant acquired or installed, 1899.
Total assessed valuation of real estate in municipality.
Amount at par of bonds issued during year for lighting and power purposes. $350.00.
Amount of outstanding debentures, 31st December, 1910.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power.
Number municipal arc lamps, 40.
Nominal candle power, 32 C.P.
Number incandescent lamps supplied: Commercial, 750.
Nominal candle power. 16 C.P.
Amount of power supplied to customers K.W.
K.W. None.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps. $4.20 per year.
Price charged for electric power per K.W. None.
Cost per public arc lamp. Not given.
Cost per public incandescent lamp.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF DUNDALK.—(*Continued.*)

Operating expenses:		
Production:		
Salaries, production	$596 33	
Labour, production.	968 77	
Fuel	241 04	
Oil, waste and sundries	.....	
Water	.....	
Water rights	.....	
Repairs, buildings and structures	.....	
Repairs, motive power	186 00	
Repairs, electric apparatus	385 17	
Station expense	.....	
Power purchased	.....	
Distribution:		
Salaries, distribution	.....	
Sub-station labour and expense	.....	
Distribution expense	.....	
Incandescent lamp renewals	.....	
Wiring and jobbing	.....	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	.....	
Repairs, subways and cables	.....	
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
General Expense:		
Office salaries	.....	
Office expense	.....	
Registering and collecting	.....	
Legal expense	.....	
General expense	.....	
Advertising	.....	
Leaseholds, rentals, etc.	.....	
Damages	.....	
Depreciation	.....	
Steam Heating Department:		
Total operating expenses—Electric		$2,377 31
Gross earnings from sale of power and lighting:		
Flat rate	$1,203 50	
Meter	718 40	
Street lighting	350 00	
Meter rent	75 00	
		$2,346 90
Less operating expenses	.....	$2.377 31
Deficit	.....	$30 41
Deductions from net income	.....	
Interest on debenture debt	.....	$132 47
Sinking fund	.....	
Reconstruction reserve fund	.....	
Other deductions	.....	
Deficit	.....	$162 88
Assets:		
Plant, real estate, building equipment, etc.	.....	$6,500 00
Liabilities:		
Debentures current.	.....	$3,311 90

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF FORT FRANCES.

Plant acquired or installed, 1909.
Total assessed valuation of real estate in municipality, $1,186,627.
Amount at par of bonds issued during year for lighting and power purposes, $10,000.
Amount of outstanding debentures, 31st December, 1910,
Motive power. Water.
Number com. arc lamps supplied. None.
Nominal candle power, .
Number Municipal arc lamps, 28.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied: Municipal, 50 16-C.P.; Commercial, 1,741 16-C.P.
Nominal candle power, .
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps. None.
Price charged for com. incandescent lamps, 10c. K.W.H.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $50.
Cost per public incandescent lamp,

Gross earnings from sale of power and lighting	.....	$2,776 66
Public buildings	.....	240 00
From street arc lights	.....	1,400 00
		$4,416 66

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF FORT FRANCES.—(*Continued.*)

Less operating expenses		504 96
		$3,911 70
Deductions from net income		
Interest on debenture debt	500 00	
Sinking fund	150 60	
Reconstruction reserve fund		
Other deductions		$650 60
Surplus or deficit		$3,251 10
Assets:		
Plant, real estate, building, equipment, etc (to date)		$7,500 00
Liabilities:		
Debentures current		$10,000 00

* Bonds have been issued to cover total expenditure. Works not yet completed.

Operating expenses:		
Salaries, production	$150 00	
Wages	108 91	
Fuel		
Oil, waste and sundries		
Repairs	91 20	
General expenses	154 85	
Depreciation		$504 96
Total operating expenses		

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF FORT WILLIAM.

Plant acquired or installed, 1899.
Total assessed valuation of real estate in municipality. Not given.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $184,573.50.
Motive power. Buy power.
Number com. arc lamps supplied, 15.
Nominal candle power, 2,000 c.p.
Number Municipal arc lamps, 158.
Nominal candle power, 2,000 and 3,000.
Number incandescent lamps supplied. Commercial, 18,000.
Nominal candle power, 16 C.P.
Amount of power supplied to customers K.W., 86 K.W.
Price charged for com. arc lamps, $54.
Price charged for com. incandescent lamps, $5.40.
Price charged for electric power per K.W., .04 K.W.H.
Cost per public arc lamp, $44.00.
Cost per public incandescent lamp, $4.20.

Gross earnings from sale of power and lighting	$83,656 21	
Discounts	6,719 24	
		$76,936 97
Less operating expenses		51,235 12
		$25,701 85
Deductions from net income		
Interest on debenture debt		$16,352 99
Sinking fund		
Reconstruction reserve fund		
Other deductions		
Surplus		$9,348 86
Assets:		
Plant, real estate, building equipment, etc.		$193,022 35
Liabilities:		
Debentures current		184,573 50

Production:		
Salaries, production		
Labour, production		
Fuel		
Oil, waste and sundries		
Water		
Water rights		
Repairs, buildings and structures		
power		
Repairs, electric		
Repairs, motive apparatus		
Station expense		
Power purchased	$29,499 96	
Distribution:		
Salaries, distribution		
Sub-station labour and expense		
Line maintenance	4,423 50	
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, installation	1,918 12	
Repairs, sub-ways and cables		
Repairs, meters	1,748 09	
Light sub-station	2,126 66	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF FORT WILLIAM.—(*Continued.*)

Repairs, commercial arc lamps		
General Expense:		
Office salaries	2,266 83	
Office expense	52 42	
Registering and collecting		
Legal expense	21 39	
General expense, Administration	545 16	
Advertising, other items		
Leaseholds, rentals, etc.	2,264 67	
Street lighting	4,695 20	
		$49,562 00
Depreciation		1,673 12
Total operating expenses		$51,235 12

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF GRAVENHURST.

Plant acquired or installed. 1907.
Total assessed valuation of real estate in municipality, $507,882.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $83,372.51.
Motive power. Water.
Number com. arc lamps supplied, 4.
Nominal candle power, 1,000 C.P.
Number municipal arc lamps. None.
Nominal candle power, 0.
Number incandescent lamps supplied Municipal 100; Commercial 3,000.
Nominal candle power, 32 C.P.
Amount of power supplied to customers K.W., 210 K.W.
Price charged for com. arc lamps, $45.
Price charged for com. incandescent lamps, $4.80.
Price charged for electric power per K.W., $15 H.P.
Cost per public arc lamp, $40 per year.
Cost per public incandescent lamp, $10.

Production:		
Salaries, production	$1,265 00	
Labour, production	32 92	
Fuel		
Oil, waste and sundries	21 50	
Water		
Water rights,		
Repairs, buildings and structures.		
Repairs, motive power		
Repairs, electric apparatus	357 73	
Station expense	167 65	
		$1,844 80
Distribution:		
Salaries, distribution	$1,291 98	
Sub-station labor and expense		
Distribution expense		
Incandescent lamp renewals	209 55	
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus	62 79	
Repairs, poles and lines	350 00	
Repairs, subways and cables		
Repairs, meters	20 44	
Repairs, commercial arc lamps.	319 55	
		$2,254 11
General Expense:		
Office salaries	$440 00	
Office expense	183 75	
Registering and collecting	49 54	
Legal expense		
General expense		
Advertising and general expenses	183 12	
Leasehold, rentals, etc.	2 75	
Damages		
Depreciation		
		859 16
Total operating expenses		$4,958 07
Gross earnings from sale of Power and Lighting:		
Commercial arc lights, flat	$168 00	
Do. incandescent	7,242 67	
Do. by meter	599 00	
Power service	1,172 00	
		$9,181 67
Less operating expenses		4,958 07
		$4,223 60
Deductions from net income		
Interest on debenture debt	3,880 53	
Sinking fund	267 45	$4,147 98
Reconstruction reserve fund		
Other deductions		
Surplus		$75 62

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF GRAVENHURST.—(*Continued.*)

Assets—Plant, real estate, building equipment, etc.		$77,576 53
Liabilities — Debentures current	$83,639 96	
Sinking fund	267 45	
		$83,372 51

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF GUELPH.

Plant acquired or installed, 1903.
Total assessed valuation of real estate in municipality, $8,171,910.00.
Amount at par of bonds issued during year for lighting and power purposes, $236,168.61.
Amount of outstanding debentures, 31st December, 1910, $236,168.61.
Motive power, steam.
Number com. arc lamps suplied, 9.
Nominal candle power, 1,500 c. p.
Number municipal arc lamps, 99.
Nominal candle power, 1,500 c. p.
Number incandescent lamps supplied, municipal, commercial, 4.
Nominal candle power, 4, 8, 16, 32 c. p.
Amount of power supplied to customers K.W., 60 K.W.
Price charged for com. arc lamps, $73 per year.
Price charged for com. incandescent lamps, 10 K.W.H.
Price charged for electric power per K. W., 3c to 7c K.W.
Cost per public arc lamp, $60.00.
Cost per public incandescent lamp, not given.

Production:		
Water rights	.....	
sundries	.....	
Salaries, production	$520 00	
Labor, production	2,366 27	
Fuel	6,549 67	
Oil, waste and sundries	637 66	
Water	.....	
Water rights	.....	
Repairs, buildings and structures	508 00	
Repairs, motive power	534 53	
Repairs electric apparatus	198 20	
Station expense	45 24	
Power purchased,		
Sub-station labor sundries	218 62	
		$11,075 27
Distribution:		
Salaries, distribution	$343 00	
Distribution expense	50	
Incandescent lamp renewals	432 03	
Wiring and jobbing	454 78	
Operating and repairing street lamps	1,023 84	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	472 31	
Government fees	84 35	
Repairs, meters	.....	
Repairs, transformers	65	
Repairs, commercial arc lamps	4 59	
		2,816 05
General expense:		
Office salaries	780 30	
Office expense	160 56	
Registering and collecting	220 65	
Legal expense	59 45	
General expense	920 87	
Advertising	.....	
Leasehold rentals, etc.	187 50	
Bad debts, $179,04, taxes, $296.42	475 46	
Depreciation	5,000 00	
		7,804 79
Total operating expenses		$21,696 11
Gross earnings from sale of power and lighting:		
Com. Arcs and Incandescents	$37,856 31	
Power	5,359 11	
Other sources	2,765 41	
		$39,980 83
Less operating expenses		21,696 11
		$18,284 72
Deductions from net income	.....	
Interest on debenture debt	$5,443 87	
Sinking fund	2,757 87	
Reconstruction reserve fund	.....	
		$8,201 74
Surplus or deficit	.....	$10,082 98
Assets:		
Plant, real estate, building equipment, etc.	.....	$181,482 05
Liabilities:		
Debenture current	$236,168 61*	
		$92,500 00

* Inclusive of gas debentures not relating to electric light plant.

Electric Light and Power Works, Municipality of Iroquois.

Plant acquired or installed, 1902.
Total assessed valuation of real estate in municipality, $336,621.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910. None.
Motive power. Steam auxiliary.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number municipal arc lamps, 13.
Nominal candle power, 200 C.P.
Number incandescent lamps supplied: Municipal, 30.
Nominal candle power, 50 C.P.
Amount of power supplied to customers K.W. 18 K.W.
Price charged for com. arc lamps, 4 C.P., $1.00; 8 C.P., $1.50; 16 C.P., $2.50; 32 C.P., $4.00.
Price charged for com. incandescent lamps.
Price charged for electric power per K.W. $20.
Cost per public arc lamp. None.
Cost per public incandescent lamp. Not given.

Operating Expenses:		
Salaries, production	$469 47	
Wages, production		
Fuel		14 08
Oil, waste and sundries		14 86
Repairs		161 21
General expenses		279 72
Depreciation		
Total operating expenses.		$939 34
Gross earnings from sale of power and lighting		$2,030 51
Sale of scrap		369 08
		$2,399 59
Less operating expenses		939 34
		$1,460 25
Deductions from net income..		
Interest on debenture debt....		$794 19
Sinking fund		
Reconstruction reserve fund..		
Other deductions		
Surplus		$666 06
Assets — Plant, real estate, building equipment, etc., including water works plant.		$40,099 87
Liabilities — Debentures current, including debentures issued to cover cost of water works		37,932 61

Electric Light and Power Works, Municipality of Hespeler.

Plant acquired or installed, 1900.
Total assessed valuation of real estate in municipality, $914,015.
Amount at par of bonds issued during year for lighting and power purposes, $1,624.88.
Amount of outstanding debentures, 31st December, 1910, $15,476.45.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number municipal arc lamps, 20.
Nominal candle power, 1,000 C.P.
Number incandescent lamps supplied: Municipal, 50, 16 C.P. Commercial, 1,200, 4, 8, 16 C.P.
Nominal candle power.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps. None in use.
Price charged for com. incandescent lamps, 12c. K.W.H.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp, $75, estimated.
Cost per public incandescent lamp, $5 estimated.

Operating Expenses.

Production:		
Salaries, production	$1,397 70	
Labour, production		275 00
Fuel		2,462 52
Oil, waste and sundries		155 84
Water		
Water rights		
Repairs, buildings and structures		
Repairs, motive power		
Repairs, electric apparatus..		306 66
Station expense		181 72
Power purchased		
Distribution:		
Salaries, distribution		
Sub-station labour and expense		
Distribution expense		
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines....		
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
General expense:		
Office salaries		
Office expense		
Registering and collecting..		
Legal expense		

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF HESPELER.—(*Continued.*)

General expense		Supplies	250 00
Advertising			$5,963 40
Leaseholds, rentals, etc.		Operating expenses	4,779 44
Damages		Deductions from net income..	$1,183 96
Depreciation		Interest on debenture debt	$821 91
Steam heating department:		Sinking fund	997 20
Total operating expenses, electric	$4,779 44		$1,819 11
Gross Earnings from Sale of Power and Lighting:		Reconstruction reserve fund..	
Commercial incandescents and arcs	$3,811 55	Other deductions	
Meter	50 00	Surplus or deficit	$635 15
Street arcs	1,300 00	Assets — Plant, real estate, building equipment, etc.	$9,457 79
Incandescents	200 00	Liabilities — Debentures current	15,476 85
Meter rents	351 85		
	$5,713 40		

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF KENORA.

Plant acquired or installed, 1902.
Total assessed valuation of real estate in municipality, $4,508,440.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount outstanding of debentures, 31st December, 1910, $555,006.07.
Motive power. Water.
Number com. arc lamps supplied, 11.
Nominal candle power, 600 C.P.
Number municipal arc lamps, 90.
Nominal candle power, 600 C.P.
Number incandescent lamps supplied:
Municipal, 150.
Commercial, 8,050.
Nominal candle power, 16 C.P., 8 C.P.
Amount of power supplied to customers K.W., 1,900.
Price charged for com. arc lamps, $60.
Price charged for com. incandescent lamps, $4.80 per year, 16 C.P.
Price charged for electric power per K.W. $10 to $50 H.P.
Cost per public arc lamp, $40.
Cost per public incandescent lamp, $3.50 per year.

Operating Expenses:		Repairs	2,256 17
Salaries, production		General expenses	
Wages, production	$12,275 51	Depreciation	
Fuel, cost of power	10,400 00	Total operating expenses.	$27,599 72
Oil, waste and sundries	2,668 04	Gross earnings from sale of power and lighting	$63,002 55
		Less operating expenses	27,599 72
			$35,402 83
		Deductions from net income	
		Interest on debenture debt	$22,530 39
		Sinking fund	7,882 22
		Reconstruction reserve fund	
		Other deductions	1,449 93
			$31,862 54
		Surplus or deficit	$3,540 29
		Assets — Plant, real estate, building, equipment, etc.	$387,660 87
		Liabilities — Debentures current	$556,749 97
		Sinking fund	40,337 87
		Net debt	$516,412 10

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF KINCARDINE.

Plant acquired or installed, 1894.
Total assessed valuation of real estate in municipality, $734,076.
Amount at par of bonds issued during year for lighting and power purposes, None.
Amount of outstanding debentures, 31st December, 1910, $101,897.88.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power, 1,500.
Number municipal arc lamps, 20.
Nominal candle power, 1,500.
Number incandescent lamps supplied:
Municipal, 30,
Commercial, 2,933, 16 C.P.
Nominal candle power, 32 C.P.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF KINCARDINE.—(*Continued.*)

Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps, $4.50, 16 C.P.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp.
Cost per public incandescent lamp, $3.60.

Operating Expenses.

Production:		
Salaries, production	$1,475 17	
Labour, production.	.....	
Fuel	1,451 52	
Oil, waste and sundries	163 84	
Water	.....	
Water rights	.....	
Repairs, buildings and structures	.....	
Repairs, motive power	900 00	
Repairs, electric apparatus	448 57	
Station expense	.....	
Power purchased	.....	
		$4,439 10
Distribution:		
Salaries, distribution	$148 72	
Sub-station labour and expense	.....	
Distribution expense	.....	
Incandescent lamp renewals	.....	
Wiring and jobbing	347 04	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and and lines	.....	
Repairs, subways and cables	315 30	
		$811 06
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
General Expense:		
Office salaries	125 00	
Office expense	15 25	
Registering and collecting	.....	
Legal expense	.....	
General expense	.....	
Advertising	12 50	
Leaseholds, rentals, etc.	.....	
Damages	152 75	
Depreciation	.....	
Total operating expenses, electric		$5,402 91
Gross earnings, commercial incandescents		$2,693 79
Metered		2,052 88
Public building lighting		90 00
Street arc lights		1,000 00
Incandescent lights		229 00
		$6,065 67
Rent of meters, $140; installations, $405.75		545 75
		$6,611 42
Operating expenses		5,402 91
		$1,208 51
Interest on debenture debt	$374 12	
Sinking fund	811 39	
		$1,185 51
Reconstruction reserve .fund.		.....
Other deductions		.....
Surplus		$23 00
Assets—Plant and equipment.		$21,196 03
Debentures current	$8,007 95	
Sinking fund	2,721 15	
Net debt		$5,286 80

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF KINGSTON.

Plant acquired or installed, Aug. 1, 1904.
Total assessed valuation of real estate in municipality, $7,646,154.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $271,025.
Motive power. Steam.
Number com. arc lamps supplied.
Nominal candle power.
Number municipal arc lamps, 155.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied. No record.
Nominal candle power, 16.
Amount of power supplied to customers K.W. Not given.
Price charged for com. arc lamps, 10c. K.W.H.
Price charged for com. incandescent lamps, 10c. K.W.H.
Price charged for electric power per K.W. 4c. to 10c. K.W.
Cost per public arc lamp. Not given.
Cost per public incandescent arc lamp. Not given.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF KINGSTON.—(*Continued.*)

Operating Expenses.

Production:		
Salaries, production	$1,393 39	
Labour, production	7,779 87	
Fuel	10,461 07	
Oil, waste and sundries	691 39	
Water	.....	
Water rights	80 80	
Repairs, buildings and structures	370 80	
Repairs, motive power	608 30	
Repairs, electric apparatus	4,089 10	
Station expense, etc.	13 85	
Power purchased	.....	
		$25,488 57
Distribution:		
Salaries, distribution	.....	.....
Sub-station labour and expense	.....	.....
Distribution expense	.....	.....
Incandescent lamp renewals, carbon for arcs	.....	$482 54
Wiring and jobbing	.....	.....
Operating and repairing street lamps	.....	.....
Repairs, sub-station buildings and apparatus	.....	.....
Repairs, poles and lines	....	.....
Repairs, subways and cables	.....	.....
Repairs, meters	.....	.....
Repairs, transformers	.....	.....
Repairs, commercial arc lamps	.....	.....
General Expense:		
Office salaries	.....	$562 50
Office expense, rent		100 00
Registering and collecting	.....	.....
Legal expense	.....	.....
General expense, printing	.....	252 25
Advertising	.....	.....
Leaseholds, rentals, etc., taxes	.....	2,129 99
Damages	.....	200 80
Insurance	.....	258 87
		$13,504 41
Total operating expenses	....	$29,475 52

Gross Earnings from Sale of Power and Lighting:	
From com. incandescent lights	$34,907 00
Street arc lights	9,300 00
Railway service	3,659 61
Rents and interest	949 86
	$48,816 47
Less operating expenses	29,475 52
Deductions from net income	.....
Interest on debenture debt and and debentures paid	8,986 67
Sinking fund	.....
Reconstruction reserve fund	.....
Other deductions	38,462 19
Surplus or deficit	$10,354 28
Assets—Plant, real estate, building equipment, etc.	$372,877 36
Liabilities—Debentures current	271,025 00

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF MADOC.

Plant acquired or installed.
Total assessed valuation of real estate in municipality, $333,965.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $12,100.
Motive power.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number municipal arc lamps, 12.
Nominal candle power, 200 C.P.
Number incandescent lamps supplied: Municipal, 18.
Nominal candle power, 32 C.P.
Commercial incandescent lamps, 500, 16 C.P.
Amount of power supplied to customers K.W. 40 H.P.
Price charged for com. arc lamps, $40.
Price charged for com. incandescent lamps, $4.50 per year.
Price charged for electric power per K.W. $16.00 per year.
Cost per public arc lamp.
Cost per public incandescent lamp, $10.

Operating Expenses.

Production:	
Salaries, production	
Labour, production	
Fuel	
Oil, waste and sundries	
Water	
Water rights	
Repairs, buildings and structures	
Repairs, motive power	
Repairs, electric apparatus.	
Station expense	
Power purchased	
Distribution:	
Salaries, distribution	
Sub-station labour and expense	
Distribution expense	
Incandescent lamp renewals	
Wiring and jobbing	
Operating and repairing street lamps	
Repairs, sub-station buildings and apparatus	
Repairs poles and lines	

No details furnished.

ELECTRIC LIGHT AND POWER WORKS. MUNICIPALITY OF MADOC.—(*Continued.*)

Repairs, subways and cables		Street lighting	768 00
Repairs, meters		Installations	396 00
Repairs, transformers		From other sources	2,174 27
Repairs, commercial arc lamps			5,790 08
General Expense:		Less operating expenses	5,201 01
Office salaries	No details furnished.		$589 07
Office expense		Deductions from net income	
Registering and collecting		Interest on debenture debt, included in total, $5,201.01	
Legal expense		Sinking fund	
General expense		Reconstruction reserve fund	
Advertising		Other deductions	
Leaseholds, rentals, etc.		Surplus or deficit	
Damages		Assets — Plant, real estate, building equipment, etc.	$15,836 46
Depreciation		Liabilities — Debentures current	12,100 00
Total operating expenses, electric	$5,201 01		
Gross earnings from sale of power and lighting	$2,451 81		

ELECTRIC LIGHT AND POWER WORKS. MUNICIPALITY OF MIDLAND.

Plant acquired or installed, 1903.
Total assessed valuation of real estate in municipality, $1,849,949.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $35,363.08.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number municipal arc lamps, 31.
Nominal candle power, 1,000 C.P.
Number incandescent lamps supplied: Municipal, 54.
Nominal candle power, 16 to 100 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps, 13 K.W., less 35%.
Price charged for com. incandescent lamps, 13 K.W., less 35%.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp, $50.
Cost per public incandescent lamp, $3.60. 16 C.P.

Operating Expenses.

Production:		Station expense	50 43
Salaries, production	$2,660 13	Power purchased	
Labour, production			$8,413 08
Fuel	5,348 13	Distribution:	
Oil, waste and sundries	207 15	Salaries, distribution	
Water		Sub-station labour and expense	
Water rights		Distribution expense	52 00
Repairs, buildings and structures		Incandescent lamp renewals	
Repairs, motive power	147 24	Wiring and jobbing	
Repairs, electric apparatus		Operating and repairing street lamps	460 49
		Repairs, sub-station, buildings and apparatus	
		Repairs, poles and lines	
		Repairs, subways and cables	
		Repairs, meters	
		Repairs, transformers	
		Repairs, commercial arc lamps	
			512 49
		General Expense:	
		Office salaries	
		Office expense	$196 03
		Registering and collecting	
		Legal expense	
		General expense	197 93
		Advertising	
		Leaseholds, rentals, etc.	
		Damages	
		Depreciation	
			393 96
		Total operating expenses, electric	$9,319 53

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF MIDLAND.—(*Continued.*)

Gross earnings, commercial lighting		$11,934 79	Interest on debenture debt	$1,437 54	
Public buildings		133 00	Sinking fund	1,402 66	
Street arcs		1,994 00			$2,840 20
Street incandescents		480 00	Other deductions		
Earnings from operation		$14,541 79	Surplus		$2,382 06
Operating expenses		9,319 53			
		$5,222 26	Assets:		
Deductions from net income..			Plant and equipment		$50,935 09
			Liabilities:		
			Debentures outstanding		35,363 08

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF MOUNT FOREST.

Plant acquired or installed, 1901.
Total assessed valuation of real estate in municipality, $740,000.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $9,736,24.
Motive power. Steam.
Number com. arc lamps supplied, none.
Nominal candle power. None.
Number municipal arc lamps, 14.
Nominal candle power, 250 C.P.
Number incandescent lamps supplied Municipal, 15.
Nominal candle power, 50 C.P.
Number incandescent lamps Commercial, 2,000, 16 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps. None.
Price charged for com. incandescent lamps, 10c. K.W.H.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp. Not given.
Cost per public incandescent lamp, $4.15.

Gross earnings		$4,723 66
Arc lights, street lighting		1,111 50
Earnings from operation		$5,835 16
Operating expenses		5,006 34
		$828 82
Deductions form net income..		
Interest on debenture debt	$694 00	694 00
Sinking fund		
Reconstruction reserve fund.		
Other deductions		
Surplus		$134 82
Assets:		
Plant and equipment		$15,000 00
Liabilities:		
Debentures current		9,736 24

Electric Light Plant and Water Works.

Operating Expenses:		
Salaries, production, 50%	$1,723 25	$861 62
Wages, production		
Fuel, 50%	2,187 50	1,093 75
Oil, waste and sundries, 50%	2,723 46	1,361 73
Repairs		
General expenses, 50%	3,378 47	1,689 24
Depreciation		
Total operating expenses.		$5,006 34

The operating expenses of this plant are bulked with those of the water works plant, and the expenses are distributed between the two plants.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF MILTON.

Plant acquired or installed, 1905.
Total assessed valuation of real estate in municipality, $532,020.
Amount at par of bonds issued during year for lighting and power purposes, $2,400.
Amount of outstanding debentures, 31st December, 1910, $5,349.95.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number municipal arc lamps, 20.
Nominal candle power, 1,000 C.P.
Number incandescent lamps supplied: Municipal, 70.
Nominal candle power, 16 C.P.
Number commercial incandescents, 1,532 16 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps. None.
Price charged for com. incandescent lamps. 10c. K.W.H.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $40, established.
Cost per public incandescent lamp, $2.50.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF MILTON.—(*Continued.*)

Operating Expenses.

Production:		
Salaries, production	$800 00	
Labour, production	133 00	
Fuel	1,724 24	
Oil, waste and sundries	95 00	
Water		
Water rights		
Repairs, buildings and structures.		
Repairs, motive power		
Repairs, electric apparatus		
Station expense..		
Power purchased.		
	186 00	
		$2,938 24
Distribution:		
Salaries, distribution		
Sub-station labour and expense		
Distribution expense		
Incandescent lamp renewals		
Wiring and jobbing	$70 00	
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines	25 00	
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
		95 00
General Expense:		
Office salaries		$10 00
Office expense		
Registering and collecting..		
Legal expense		
General expense		
Advertising		
Leaseholds, rentals, etc.		
Damages		
Depreciation		
Total operating expenses.		$3,043 24

Gross Earnings from Sale of Power and Lighting.	
From commercial incandescent lights	$3,345 65
From lighting public arcs	1,000 00
Rent of meters	193 00
	$4,538 65
Less operating expenses	3,043 24
	$1,495 41
Deductions from net income..	677 15
Interest on debenture debt	
Sinking fund	
Reconstruction reserve fund	
Other deductions	
Surplus	$818 26
Assets — Plant, real estate, building equipment, etc.	$14,947 85
Liabilities — Debentures current	5,349 95

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF MORRISBURG.

Plant acquired or installed, 1901.
Total assessed valuation of real estate in municipality, $578,175.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1901. $35,507.60.
Motive power. Water.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number municipal arc lamps, 65.
Nominal candle power, 50 C.P.
Number incandescent lamps supplied, 18.
Nominal candle power. None.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps. None.
Price charged for com. incandescent lamps. None.
Price charged for electric power per K.W. None.
Cost per public arc lamp. Not given.
Cost per public incandescent lamp. Not given.

Operating Expenses:	
Salaries, production	$1,521 57
Wages, production	
Fuel	97 40
Oil, waste and sundries.	
Repairs	287 83
Rent of power	810 00
Depreciation	
Total operating expenses	$2,716 80
Gross earnings from sale of power and lighting	$5,362 40
From public buildings	40 00
From street lighting	1,000 00
From other sources	348 00
	$6,750 40
Less operating expenses	2,716 80
	$4,033 60

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF MORRISBURG.—(*Continued.*)

Deductions from net income		
Interest on debenture debt and debenture paid	$1,755 60	
Sinking fund	.....	
Reconstruction reserve fund..	.....	
Other deductions	.....	
Surplus	$2,278 00	

Assets:	
Plant, real estate, building equipment, etc.	$35,000 00
Liabilities:	
Debentures current	$35,507 60

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF NAPANEE.

Plant acquired or installed, 1905-1906.
Total assessed valuation of real estate in municipality, $1,240,000.
Amount at par of bonds issued during year for lighting and power purposes, $3,300.
Amount of outstanding debentures, 31st December, 1910, $40,999.93.
Motive power. Steam.
Number com. arc lamps supplied, 5
Nominal candle power, 1,200 C.P.
Number municipal arc lamps, 38.
Nominal candle power, 1,200 C.P.
Number incandescent lamps supplied: Commercial, 3,250.
Nominal candle power, 16 and 8 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps, $70.
Price charged for com. incandescent lamps, $15.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $70.
Cost per public incandescent lamp, $15

Operating Expenses.

Production:		
Salaries, production	$1,550 00	
Labour, production.	5 75	
Fuel	2,673 91	
Oil, waste and sundries	101 52	
Water	.....	
Water rights	.....	
Repairs, buildings and structures ..	42 79	
Repairs, motive power	143 69	
Repairs, electric apparatus	1 44	
Station expense ...	34 41	
Power purchased ..	.....	
		$4,553 51
Distribution:		
Salaries	$660 00	
Sub-station labour and expense	.....	
Distribution expense	.....	
Incandescent lamp renewals	.....	
Wiring and jobbing	.....	
Operating and repairing street lamps	171 22	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	109 32	
Repairs, subways and cables	6 30	$946 84
Repairs, meters ...	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
General Expense:		
Office salaries	58 50	
Office expense	56 39	
Registering and collecting	.....	
Legal expense	.....	
General expense ..	124 60	
Advertising	13 35	
Leaseholds, rentals, etc.	.....	
Damages	.....	
Depreciation	.....	
		$252 84
Steam Heating Department:		
House wiring	.....	$31,119 53
Total operating expenses		$8,872 72
Gross earnings from sale of power and lighting:		
Commercial arc lights	$4,835 03	
Street arc lights ..	3,300 00	
Rent meters	303 75	
House wiring, etc...	3,200 24	
		$11,639 02
Less operating expenses		$8,872 72
		$2,766 30
Deductions from net income	.....	
Interest on debenture debt and debenture paid	$2,826 48	
Sinking fund	.....	
Reconstruction reserve fund	.....	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF NAPANEE.—(*Continued.*)

Other deductions	44 60	
		$2,871 08
Deficit		$104 78

Assets:	
Plant, real estate, building equipment, etc.	$46,500 00
Liabilities:	
Debentures current	$40,999 93

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF NEWMARKET.

Plant acquired or installed, 1897.
Total assessed valuation of real estate in municipality, $1,063,105.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $12,075.39.
Motive power. Steam.
Number com. arc lamps supplied, 6.
Nominal candle power, 80 H.P.
Number municipal arc lamps. None.
Nominal candle power. None.
Number incandescent lamps supplied: Municipal, 103.
Nominal candle power, 32 C.P.
Commercial incandescent lights, 3,500 5-8-16 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps, 10 per 1,000 Watts.
Price charged for com. incandescent lamps, 10 per 1,000 Watts.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $7.95 K.W.H.
Cost per public incandescent lamp, $7.95 K.W.H.

Gross earnings from sale of power and lighting	$6,249 84	
Rent of meters	361 40	
		$6,611 24
Less operating expenses	6,039 66	
		$571 58
Deductions from net income ..	.....	
Interest on debenture debt ..	$539 65	
Sinking fund	.....	
Reconstruction reserve fund ..	.....	
Other deductions	.....	
Surplus		$31 93

Assets:	
Plant, real estate, building equipment, etc.	$18,075 00
Liabilities:	
Debentures current	$12,075 39

Operating expenses:		
Salaries, production	$1,080 00	
Wages, production	100 00	
Fuel	3,000 00	
Oil, Waste and Sundries		
Repairs		
General expenses	195 85	
Depreciation	1,663 81	
Total operating expenses ..		$6,039 66

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF NIAGARA.

Plant acquired or installed, 1893.
Total assessed valuation of real estate in municipality, $586,080.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $20,010.96.
Motive power. None.
Number com. arc lamps supplied. None.
Nominal candle power. None.
Number municipal arc lamps. None.
Nominal candle power. None.
Number incandescent lamps supplied: Municipal, 250 16-32. Commercial, 3,300 16-32.
Nominal candle power,
Amount of power supplied to customers K.W., 1½ H.P.
Price charged for com. arc lamps.
Price charged for incandescent lamps, 40c. per month.
Price charged for electric power per K.W., $21.85.
Cost per public arc lamp. None.
Cost per public incandescent lamp, $1.25 per year.

Operating Expenses.

Production:		
Salaries, production		
Labour, production.		
Fuel	$115 00	
Oil, waste and sundries	16 48	
Water	.....	
Water rights	.....	
Repairs, buildings and structures ..	.....	
Repairs, motive power	176 66	
Repairs, electric apparatus	173 08	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF NIAGARA.—(*Continued.*)

Station expense ...	69 27	
Power purchased ..	771 00	
		$1,321 49
Distribution:		
Salaries,distribution	$488 00	
Sub-station labour and expense		
Distribution expense		
Incandescent lamp renewals	24 00	
Wiring and jobbing		
Operating and reparing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines		
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps	$951 83	
		$1,463 83
General Expense:		
Office salaries		
Office expense		
Registering and collecting		
Legal expense		
General expense		
Advertising		
Leaseholds, rentals, etc.		
Damages		
Depreciation		
Total operating expenses		$2,785 32
Gross earnings from sale of power and lighting		$3,210 67
From street lighting		2,000 00
		$5,210 67
Less operating expenses		2,785 32
		$2,425 35
Deductions from net income..		.....
Interest on debenture debt ..		$1,074 24
Sinking fund		
Reconstruction reserve fund ..		.....
Other deductions		
Surplus		$1,351 11
Assets:		
Plant, real estate, building equipment, etc.		$33,000 00
Liabilities:		
Debentures current		$20,010 96

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF NIAGARA FALLS.

Plant acquired or installed, 1900.
Total assessed valuation of real estate in municipality, $1,361,476.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $94,291.64.
Motive power. None.
Number com. arc lamps supplied, 11.
Nominal candle power, 2,000 C.P.
Number municipal arc lamps, 90.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied: Municipal, 107 32 C.P.
Nominal candle power, 3,700 metered, 8-16-32.
Amount of power supplied to customers K.W., 560 H.P.
Price charged for com. arc lamps, $84 per year.
Price charged for com. incandescent lamps, 4½ net K.W.H.
Price charged for electric power per K.W., $8 to $20 H.P.
Cost per public arc lamp, $84.
Cost per public incandescent lamp, $6.

Operating Expenses.

Production:		
Salaries, production		
Labour, production power $7,878 32		
Fuel, oil	11 13	
Oil, waste and sundries	172 75	
Water, Salaries, permanent staff	5,515 00	
Water rights	553 50	
Repairs, buildings and structures ...	332 21	
Repairs, motive power	78 50	
Repairs, electric apparatus	118 51	
Station expense, lamps	174 31	
Power purchased ..	634 34	
		$15,468 57
Distribution:		
Salaries, distribution, printing and stationery	$528 41	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF NIAGARA FALLS.—(*Continued.*)

Sub-station labour and expense	312 67	
Distribution expense	55 92	
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines		
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
Damages, duties, fees, supplies	2,377 39	
Depreciation	*$11,521 91	
Total operating expenses		$16,365 57

* These outlays on account of capital.

Gross earnings, commercial arc and incandescent lights		$24,826 63
Street arcs		8,382 16
Sundries		2,553 00
Earnings from operation		$35,761 79
Operating expenses		16,365 57
		$19,396 22
Deductions from net income		
Interest on debenture debt	4,164 94	
Debenture paid	7,515 85	
Reconstruction reserve fund		
Other deductions		11,680 79
Surplus		$7,715 43
		131,943 88
Assets:		
Debentures current		$94,291 64

General Expense:		
Office salaries		
Office expense, transformers and wire	$2,353 05	
Registering and collecting	1,504 91	
Pole lines	808 54	
General expense, labour	1,675 11	
Meters	2,802 91	
Leaseholds, rentals, etc.		

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF OTTAWA.

Plant acquired or installed, 1901.
Total assessed valuation of real estate in municipality, $62,287,155.
Amount at par of bonds issued during year for lighting and power purposes, $100,000.
Amount of outstanding debentures, 31st December, 1910, $430,000.
Motive power. Water.
Number com. arc lamps supplied, 186.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied:
Municipal, 2,000 10-16-32 C.P.
Commercial, 80,697 10-16.
Nominal candle power,
Amount of power supplied to customers K.W., 675 H.P.
Price charged for com. arc lamps, $36.00 per annum.
Price charged for incandescent lamps, $2.52 per annum.
Price charged for electric power per K.W., $25 per H.P.
Cost per public arc lamp, $38.
Cost per public incandescent lamp. Not given.

Operating Expenses.

Production:		
Salaries, production		
Labour, production		
Fuel		
Oil, waste and sundries		
Water		
Water rights		
Repairs, building and structures		
Repairs, motive power		
Repairs, electric apparatus		
Station expense		
Power purchased		
		$37,750 00
Distribution:		
Salaries, distribution		
Sub-station labour and expense	$27,824 62	
Distribution expense		
Incandescent lamp renewals	5,948 90	
Wiring and jobbing	1,566 15	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF OTTAWA.—(*Continued.*)

Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	35,339 67	
Repairs, subways and cables	.....	
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
General Expense:		
Office salaries	.....	
Office expense, including rent	$5,287 06	
Registering and collecting, meter inspection	609 25	
Legal expense, accident insurance ..	363 43	
General expense ...	66 20	
Advertising, pole rental	1,186 00	
Leaseholds, rentals, etc., dis. station..	4,000 00	
Discount, debentures	2,869 85	
Depreciation account outstanding	1,578 78	
		$15,960 57
Steam Heating Department:		
Total operating expenses		$89,050 24
Gross earnings from sale of power and lighting	$134,321 19	
Office receipts	325 00	
		$134,646 19
Less operating expenses		89,050 24
		$45,595 95
Deductions from net income	.....	
Interest on debenture debt	$14,876 55	
Sinking fund	6,930 00	
Reconstruction reserve fund	.....	
Other deductions	.....	
		$21,806 55
Surplus or deficit		$23,789 40
Assets:		
Plant, real estate, building equipment, etc.		$354,086 19
Liabilities:		
Debentures current	$430,000 00	
Sinking fund 32,588 62		
		$397,411 38

ELECTRIC LIGHT AND POWER WORKS, MUNICIPILITY OF OWEN SOUND.

Plant acquired or installed, 1903.
Total assessed valuation of real estate in municipality, $7,004,025.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $121,000.
Motive power. Steam.
Number com. arc lamps supplied, 35.
Nominal candle power, 1,200 C.P.
Number municipal arc lamps, 82.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied:
Municipal, 64-32 C.P.
Commercial, 18,326 16 C.P.
Nominal candle power,
Amount of power supplied to customers K.W., $1.50 K.W., 10 hours.
Price charged for com. arc lamps, 10c. K., 20% discount.
Price charged for com. incandescent lamps, 10c. K., 20% discount.
Price charged for electric power per K.W., 1½ to 2c. K.W.H.
Cost per public arc lamp, $65.
Cost per public incandescent lamp, $16.

Gross earnings from sale of power and lighting	$19,766 63	
From street arc lights	5,980 78	
From street incandescent lights	790 00	
From com. power service	7,523 96	
From other sources	1,267 61	
		$35,328 98
Operating expenses		$20,280 83
		$15,048 15
Deductions from net income	.....	
Interest on debenture debt	$4,675 00	
Sinking fund	5,133 42	$9,808 42
Reconstruction reserve fund	.....	
Other deductions	.....	
Surplus		$5,239 73
Assets:		
Plant, real estate, building equipment, etc.		$120,997 62
Liabilities:		
Debentures current	$121,000	
Sinking fund	23,271 95	
		$97,728 05

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF OWEN SOUND.—(*Continued.*)

Operating Expenses.

Production:		
Salaries, production and distribution	$1,500 00	
Labour, production and distribution	5,294 31	
Fuel	.....	
Oil, waste and sundries	.....	
Water	.....	
Water rights	.....	
Repairs, buildings and structures	.....	
Repairs, motive power	.....	
Repairs, electric apparatus	.....	
Station expense	.....	
Power purchased	$12,132 72	
		$18,927 03
Distribution:		
Salaries, distribution		
Sub-station labour and expense	.....	
Distribution expense		
Incandescent lamp renewals	.....	
Wiring and jobbing	.....	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	.....	
Repairs, subways cables	.....	
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
General Expense:		
Office salaries	$618 75	
Office expense	159 02	
Registering and collecting	.....	
Legal expense	.....	
Insurance	458 79	
Distribution on debentures	117 24	
Leaseholds, rentals, etc.	.....	
Damages	.....	
Depreciation	.....	
		$1,353 80
Total operating expenses		$20,280 83

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF PARIS.

Plant acquired or installed, 1901.
Total assessed valuation of real estate in municipality, $1,600,000.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $33,000.
Motive power. Steam and water.
Number com. arc lamps supplied, 35.
Nominal candle power, 350 C.P.
Number municipal arc lamps, 35.
Nominal candle power, 350 C.P.
Number incandescent lamps supplied:
Municipal, 250 16 C.P.
Commercial, 4,000 16 C.P.
Nominal candle power, .
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps. Not given.
Price charged for com. incandescent lamps, 7 and 8c. K.W.H.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp. Not given.
Cost per public incandescent lamp. Not given.

Operating Expenses:		
Salaries, production	$2,029 40	
Wages	.....	
Fuel	2,171 02	
Oil, waste and sundries	788 59	
Repairs	.....	
General expenses	.....	
Depreciation	.....	$4,989 01
Total operating expenses		
Gross earnings from sale of power and lighting:		
Rate collector	$6,272 62	
Charge running pump	1,500 00	
Lighting streets	2,200 00	
Heating buildings	300 00	
Sundries	380 62	
		$10,653 24
Less operating expenses		4,989 01
		$5,664 23
Deductions from net income	.....	
Interest on debenture debt and debentures paid	$4,080 00	
Insurance	200 00	
Sinking fund	.....	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF PARIS.—(*Continued.*)

Reconstruction reserve fund	700 00	
Other deductions		$4,980 00
Surplus		$684 23

Assets:
Plant, real estate, building equipment, etc. $55,324 00

Liabilities:
Debentures current $33,000 00

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF PERTH.

Plant acquired or installed, January 14th, 1909.
Total assessed valuation of real estate in municipality, $1,359,670.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $10,400.
Motive power. Water.
Number com. arc lamps supplied, 4.
Nominal candle power, 2,000 C.P.
Number municipal arc lamps, 38.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied. None.
Nominal candle power,
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps, $44.00.
Price charged for com. incandescent lamps. None.
Price charged for electric power per K.W. None sold.
Cost per public arc lamp, $50.
Cost per public incandescent lamp,

Operating Expenses.

Production:		
Salaries, production	$391 50	
Labour, production	.....	
Fuel	.....	
Oil, waste and sundries	15 23	
Water	16 08	
Water rights	.....	
Repairs, buildings and structures	.....	
Repairs, motive power	496 71	
Repairs, electric apparatus	156 93	
Station expense	.....	
Power purchased	12 96	
		$1,089 41
Distribution:		
Salaries, distribution	$455 00	
Sub-station labour and expense	.....	
Distribution expense	69 53	
Incandescent lamp renewals	36 00	
Wiring and jobbing	.....	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	10 25	
Repairs, poles and lines	66 21	
Repairs, subways and cables	.....	
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps	70 07	
		$707 06
General Expense:		
Office salaries	$150 00	
Office expense	.....	
Registering and collecting	44 25	
Legal expense	.....	
General expense	.....	
Advertising, etc.	48 36	
		$242 61
Leaseholds, rentals, etc.	.....	
Damages	.....	
Depreciation	.....	
Total operating expenses		$2,039 08
Gross earnings from sale of power and lighting		$2,599 22
Less operating expenses		2,039 08
		$560 14
Deductions from net income	.....	
Interest on debenture debt	300 00	
Sinking fund	428 00	
		$728 00
Reconstruction reserve fund	.....	
Other deductions	.....	
Surplus or deficit		$167 86

Assets:
Plant, real estate, building equipment etc. $14,000 00

Liabilities:
Debentures current $10,400 00

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF PORT ARTHUR.

Plant acquired or installed, 1895.
Total assessed valuation of real estate in municipality, $14,513,612.
Amount at par of bonds issued during year for lighting and power purposes. $22,000.
Amount of outstanding debentures, 31st December, 1910, $372,013.40.
Motive power. Water.
Number com. arc lamps supplied. None.
Nominal candle power, 6.
Number municipal arc lamps, 16.
Nominal candle power, 1,200 C.P.
Number incandescent lamps supplied:
Municipal, 600 16 C.P.
Commercial, 20,000 16 C.P.
Nominal candle power,
Amount of power supplied to customers K.W., 900 H.P.
Price charged for com. arc lamps, $48.
Price charged for com. incandescent lamps. Sliding scale.
Price charged for electric power per K.W., $25 per an.
Cost per public arc lamp, $48 estd.
Cost per public incandescent lamp, $4.10 estd.

Gross Earnings:		
From com. arc lights		$62,824 90
From com. incan. lights		3,382 40
From street arcs and incs.		9,538 59
From com. power services		
From municipal services		38,750 00
From railway services		3,854 20
		$118,350 09
Earnings from operation and rents		203 60
		$118,553 69
Deductions from net income, operating expenses	$78,753 96	
Interest on debenture debt	23,669 56	
Sinking fund	4,829 13	
Reconstruction reserve fund		
Other deductions		$107,252 65
Surplus		$11,301 04
Total assets		$383,720 42
Liabilities:		
Debentures outstanding		$372,013 40
		$372,013 40

Operating Expenses.

Production:		
Salaries, production	$3,379 33	
Labour, production		
Fuel	$3,680 30	
Oil, waste and sundries		
Water		
Water rights		
Repairs, buildings and structures		
Repairs, motive power		
Repairs, electric apparatus		
Station expense	3,720 82	
Power purchased	60,564 77	
		$71,345 22
Distribution:		
Salaries, distribution	$1,345 00	
Sub-station labour and expense		
Distribution expense		
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines		
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
	$2,925 94	
		$4,270 94
General Expense:		
Office salaries	$1,800 00	
Office expense		
Registering and collecting		
Legal expense		
General expense	$394 86	
Advertising		
Leaseholds, rentals, etc.	342 94	
Damages	600 00	
Depreciation		
		$3,137 80
Total operating expenses		$78,753 96

Construction and Equipment.

Land occupied by generating stations		$351,924 12
Land occupied by sub-stations.		
Water rights		
Hydraulic structures		8,339 45
Generating station buildings		1,031 88
Sub-station buildings		
Other real estate		
Rights of way		

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF PORT ARTHUR.—(*Continued.*)

Hydraulic machinery and apparatus (generating stations)		Arc lamps	
Electrical apparatus (generating stations)	11,466 73	Incandescent lamps	
Sub-station apparatus, storage battery	2,225 67	Motors	
Transmission lines		Fixtures and merchandise	
Construction, poles and lines		Tools and implements	
Construction, subways and cables	8,732 57	Testing apparatus	
Services		Stable equipment	
Line transformers		Steam heating plant, fixtures and appliances	
Meters		Office furniture and fixtures	
		Miscellaneous (specify)	
		Total	$383,720 42

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF PORT PERRY.

Plant acquired or installed, Oct., 1903.
Total assessed valuation of real estate in municipality. None.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $21,746.50.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power.
Number municipal arc lamps, 3.
Nominal candle power, 800 C.P.
Number incandescent lamps supplied: Municipal, 100.
Nominal candle power, 16 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps, $4.50 to $5.00 per year.
Price charged for electric power per K.W. None supplied.
Cost per public arc lamp, $50.
Cost per public incandescent lamp. Not given.

Operating Expenses.

Production:		
Salaries, production	$496 55	
Labour, production		
Fuel		
Oil, waste and sundries		
Water		
Water rights		
Repairs, buildings and structures		
Repairs, motive power		
Repairs, electric apparatus		
Station expense		
Power purchased		
Distribution:		
Salaries, distribution		
Sub-station labour and expense		
Distribution expense		
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines		
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
General Expense:		
Office salaries		$100 00
Office expense		
Registering and collecting		
Legal expense		
General expense of water-works and electric plant. Details not given		3,790 03
Damages		
Depreciation		
Total operating expenses		$4,386 58
Gross earnings from sale of power and lighting		$4,444 61
Other earnings		1,232 58
		$5,677 19
Less operating expenses		4,386 58
		$1,290 61
Deductions from net income		
Interest on debenture debt and debt paid.	$925 25	925 25
Sinking fund		
Reconstruction reserve fund		
Other deductions		
Surplus		$365 36
Assets:		
Plant, real estate, building equipment, etc.		$17,500 00
Liabilities:		
Debentures current		$21,746 50

Electric Light and Power Works, Municipality of Prescott.

Plant acquired or installed, 1900.
Total assessed valuation of real estate in municipality, $1,159,101.
Amount at par of bonds issued during year for lighting and power purposes. $2,500.
Amount of outstanding debentures, 31st December, 1910, $16,506.71.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power,
Number municipal arc lamps, 10.
Nominal candle power, 1,200 C.P.
Number incandescent lamps supplied: Municipal, 115.
Nominal candle power, 16 & 32 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps, 9c. K.W.H.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $96.60.
Cost per public incandescent lamp. Not given.

Operating Expenses.

Production:		
Salaries, production	$2,223 06	
Labour, production	.....	
Fuel	2,595 12	
Oil, waste and sundries	275 10	
Water	.....	
Water rights	.....	
Repairs, buildings and structures	.....	
Repairs, motive power	.....	
Repairs, electric apparatus	1,373 01	
Station expense	530 04	$6,996 33
Power purchased	.....	
Distribution:		
Salaries, distribution	.....	
Sub-station labour and expense	.....	
Distribution expense	.....	
Incandescent lamp renewals	.....	927 36
Wiring and jobbing	.....	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	.....	677 18
Repairs, subways and cables	.....	
Repairs, meters	.....	4 05
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
General Expense:		
Office salaries	$466 35	
Office expense	.....	
Registering and collecting	.....	
Legal expense	.....	
General expense	.....	
Advertising	100 00	
Leaseholds, rentals, etc.	100 00	
Damages	.....	
Depreciation	655 40	
		$1,221 75
Total operating expenses—electric		$9,826 67

Gross earnings from sale of power and lighting:		
Commercial arc and incandescent lighting		$7,389 38
Street arc lights		1,009 02
Street incandescent lights		1,245 29
Power service		245 69
		$9,889 38
Less operating expenses		9,826 67
		*$62 71

* Interest on debentures not included.

Deductions from net income	
Interest on debenture debt	
Sinking fund	
Reconstruction reserve fund	
Other deductions	
Surplus or deficit	
Assets:	
Plant, real estate, building equipment, etc.	$31,560 70
Liabilities:	
Debentures current	$16,506 71

Electric Light and Power Works, Municipality of Preston.

Gross earnings from sale of power and lighting:		
Commercial arc and incandescent lights	$7,407 87	
Street arc lights	1,700 00	
Sale of lamp and sundries	145 60	
From Water Dept., pumping	2,200 00	
		$11,453 47
Less operating expenses		8,722 86
		$2,730 61

EELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF PRESTON.—(*Continued.*)

Deductions from net income		
Interest on debenture debt	$1,465 21	
Interest on overdraft.	224 21	
Debenture paid	1,484 40	
Reconstruction reserve fund		
Other deductions		$3,173 82
Deficit		$443 21
Assets:		
Plant, real estate, building equipment, etc.		$52,256 50
Liabilities:		
Debentures current		$50,240 88
Production:		
Salaries, production	$2,071 69	
Labour, production.		
Fuel	5,140 05	
Oil, waste and sundries	518 17	
Water		
Water rights		
Repairs, buildings and structures		
Repairs, motive power	116 62	
Repairs, electric apparatus		
Station expense		
Power purchased		
		$7,846 53
Distribution:		
Salaries, distribution		
Sub-station labour and expense		
Distribution expense		
Incandescent lamp renewals		$346 74
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines		
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
General Expense:		
Office salaries	$300 00	
Office expense		
Registering and collecting		
Legal expense	229 59	$529 59
General expense		
Advertising		
Leaseholds, rentals, etc.		
Damages		
Depreciation		
Total operating expenses		$8,722 86

Plant acquired or installed, 1905.
Total assessed valuation of real estate in municipality, $1,190,668.
Amount at par of bonds issued during year for lighting and power purposes. $18,000.
Amount of outstanding debentures, 31st December, 1910, $50,240.88.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power, 40 C.P.
Number municipal arc lamps, 190 Tungsten.
Nominal candle power.
Number incandescent lamps supplied: Commercial, 4,000.
Nominal candle power, 4 to 80.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps, $12.
Price charged for com. incandescent lamps, 6 2-3, 9, 10.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $12.
Cost per public incandescent lamp. Not given.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF ST. MARY'S.

Gross earnings from sale of power and lighting:		
Electric light rates	$7,731 76	
Street lighting	2,700 00	
Sundries	410 28	
	$10,842 04	
Less operating expenses	$	
Deductions from net income		
Interest on debenture debt		
Reconstruction reserve fund		
Other deductions		
Sinking fund		
Surplus or deficit		
Assets:		
Plant, real estate, building equipment, etc.		Not given.
Liabilities:		
Debentures current		Not given.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF ST. MARY'S.—(*Continued.*)

Operating Expenses.

Production:		
Salaries, production	$1,814 44	
Labour, production	3,196 12	
Fuel		
Oil, waste and sundries		
Water		
Water rights		
Repairs, buildings and structures		
Repairs, motive power		
Repairs, electric apparatus		
Station expense		
Power purchased		
Distribution:		
Salaries, distribution		
Sub-station labour and expense		
Distribution expense		
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines	$2,515 61	
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
General Expense:		
Office salaries		
Office expense		
Registering and collecting		
Legal expense		
Legal expense		
General expense		
Advertising		
Leaseholds, rentals, etc.	$1,017 33	
Damages		
Depreciation		
Total operating expenses		$8,543 50

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF ST. THOMAS.

Plant acquired or installed, 1905.
Total assessed valuation of real estate in municipality, $7,715,925.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $72,376.82.
Motive power. Steam.
Number com. arc lamps supplied, 20.
Nominal candle power, 2,000 C.P.
Number municipal arc lamps, 80.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied: Commercial, 6,000 16 C.P.
Nominal candle power, 16 C.P.
Amount of power supplied to customers K.W., 150 K.W.
Price charged for com. arc lamps, $91.25.
Price charged for com. incandescent lamps, 10c. K.W.H.
Price charged for electric power per K.W., 7c. K.W.H.
Cost per public arc lamp, $80.
Cost per public incandescent lamp. Not given.

Operating Expenses.

Production:		
Salaries, production	$6,233 17	
Labour, production		
Fuel—Coal	11,423 44	
Oil, waste and sundries	2,053 87	
Insurance	300 39	
Taxes	1,682 02	
Repairs, buildings and structures		
Repairs, motive power		
Repairs, electric apparatus		
Station expense		
Power purchased		
		$21,692 89
Distribution:		
Salaries, distribution		
Sub-station, labour and expense		
Distribution expense		
Incandescent lamp renewals		
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines		
Repairs, subways and cables		
Repairs, meters		
Repairs, transformers		
Repairs, commercial arc lamps		
General Expense:		
Office salaries		
Office expense		
Registering and collecting		
Legal expense		
General expense		
Advertising		
Leaseholds, rentals, etc.		
Damages		
Depreciation, 6%		$6,724 18
Total operating expenses		$28,417 07

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF ST. THOMAS.—(*Continued.*)

Gross earnings from sale of power and lighting:		Sinking fund	
Commercial arc lights	$1,050 25	Reconstruction reserve fund...	
Commercial arc lights and Incandescent lights, meter	12,165 12	Other deductions	
Street arc lights	7,374 10	Deficit	$1,425 79
Street Incandescent lights..	3,690 55	Assets:	
Railway service	3,397 62	Plant, real estate, building equipment, etc.	$49,991 63
Interest bank balances	151 90	Liabilities:	
Heating buildings	2,452 78	Debentures current, gas and electric light	$217 130 46
	$30,282 32	Less prop. gas debentures..	144,753 64
Operating expenses	28,417 07		$72,376 82
	$1,865 25		
Deductions from net income..			
Interest on debenture debt...	$3,291 04		

ELECTRIC LIGHT AND POWER WORKS, MUNICIPILITY OF SOUTHAMPTON.

Plant acquired or installed. Owned by the Saugeen Electric Light Company.
Total assessed valuation of real estate in municipality, $458,713.
Amount at par of money paid during year for lighting and power purposes, $924.84.
Amount of outstanding debentures, 31st December, 1910. None.

This plant is being operated by Company as above, and furnishes light for municipal uses.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF STREETSVILLE.

Plant acquired or installed, 1910.		Com. power service	1,304 41
Total assessed valuation of real estate in municipality, $204,629.			$1,704 41
Amount at par of bonds issued during year for lighting and power purposes. None.		Less operating expenses	605 39
Amount of outstanding debentures, 31st December, 1910, $2,001,584.		Net earnings from operation..	$1,099 02
Motive power. Water.		Deductions from net income..	
Number com. arc lamps supplied. None.		Interest on debenture debt ..	$1,027 36
Nominal candle power, .		Sinking fund	
Number municipal arc lamps. None.		Reconstruction reserve fund..	
Nominal candle power, .		Other deductions	
Number incandescent lamps supplied:		Surplus	$71 66
Municipal, 32 32 C.P.			
Commercial, 800 16 C.P.		Operating expenses:	
Nominal candle power, .		Salaries, production	$540 00
Amount of power supplied to customers K.W., 65 H.P.		Wages	.....
Price charged for com. arc lamps. None.		Fuel	.....
Price charged for com. incandescent lamps, 6c. K.W.		Oil, waste and sundries	.....
Price charged for electric power per K.W., 6c. K.W.		Repairs	65 39
Cost per public arc lamp. Not given.		General expenses ..	.....
Cost per public incandescent lamp. Not given.		Depreciation	.....
		Total operating expenses	$605 39
		Assets:	
		Plant and equipment	$27,000 00
Gross earnings:		Liabilities:	
Incandescent lights.	$400 00	Debentures outstanding	$20,015 84

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF THESSALON.

Plant acquired or installed, 1901.
Total assessed valuation of real estate in municipality.
Amount at par of bonds issued during year for lighting and power purposes.
Amount of outstanding debentures, 31st December, 1910, $10,975.66.
Motive power. Steam.
Number arc lamps supplied:
Municipal, 13.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF THESSALON.—(*Continued.*)

Nominal candle power, 1,200 C.P.
Number incandescent lamps supplied: Municipal, 31; Commercial, 1,100.
Nominal candle power, 16 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps, $4.00 per year.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $40.00.
Cost per public incandescent lamp, $4.00 estimate.

Operating Expenses.

Production:		
Salaries, production	$1,135 00	
Labour, production	.....	
Fuel	1,875 00	
Oil, waste and sundries	254 97	
Water	.....	
Water rights	.....	
Repairs, buildings and structures	.....	
Repairs, motive power	.....	
Repairs, electric apparatus	.....	
Station expense	.....	
Power purchased	.....	
		$3,264 97
Distribution:		
Salaries, distribution	.....	
Sub-station, labour and expense	.....	
Distribution expense	.....	
Incandescent lamp renewals	$2 75	
Wiring and jobbing	.....	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	.....	
Repairs, subways and cables		
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps		
General Expense:		
Office salaries	.....	
Office expense	.....	$100 00
Registering and collecting	..	
Legal expense	.....	
General expense	.....	
Advertising	.....	
Leaseholds, rentals, etc.	...	
Damages	.....	
Depreciation	.....	
Total operating expenses	....	$3,367 72

Gross earnings from sale of power and lighting:		
Commercial arcs and incandescent lights	.....	$4,333 33
Street arcs	.....	479 00
Street incandescents	.....	96 00
		$4,908 33
Less operating expenses	.....	3,367 72
		$1,540 61
Deductions from net income	..	
Interest on debenture debt	..	$562 91
Sinking fund	.....	
Reconstruction reserve fund	..	
Other deductions	.....	
Surplus	.....	$977 70
Assets:		
Plant, real estate, building equipment, etc.	.....	$12,968 86
Liabilities:		
Debentures current	.....	$10,975 66

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF THOROLD.

Plant acquired or installed.
Total assessed valuation of real estate in municipality, $858,543.
Amount at par of bonds issued during year for lighting and power purposes (1909), $3,380.74.
Amount of outstanding debentures, 31st. December, 1910, $721.41.
Motive power. Water.
Number com. arc lamps supplied. None.
Nominal candle power.
Number municipal arc lamps, 28.
Nominal candle power, 1,200 C.P.
Number incandescent lamps supplied: Municipal, 30.
Nominal candle power, 32 C.P.
Commercial, 3,500, 8 16-C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps, $1.00.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $10.00 (estimated).
Cost per public incandescent lamp. Not given.

Gross earnings from sale of power and lighting:		
From com. incandescents	..	$4,599 61
From com. arcs	.....	542 96
From sale of lamps, etc.	....	348 30
		$5,490 87
Less operating expenses	.....	3,380 74
		$2,110 13

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF THOROLD.—(*Continued.*)

Deductions from net income ..	..	
Interest on debenture debt ...	$47 89	
Sinking fund	....	
Reconstruction reserve fund..		
Other deductions		
Surplus	$2,062 24	
Assets:		
Plant, real estate, building equipment, etc.	$25,000 00	
Liabilities:		
Debentures current	$721 41	

Operating Expenses.

Production:		
Salaries, production	$1,240 00	
Labour, production		
Fuel	291 41	
Oil, waste and sundries ...	40 80	
Water	110 00	
Water rights		
Repairs, buildings and structures		
Repairs, motive power		
Repairs, electric apparatus..		
Station expense		
Power purchased		
Distribution:		
Salaries, distribution		
Sub-station labour and expense		..
Distribution expense		
Incandescent lamp renewals		..
Wiring and jobbing		
Operating and repairing street lamps		
Repairs, sub-station buildings and apparatus		
Repairs, poles and lines		
Repairs, subways and cables.		
Repairs, meters		..
Repairs, transformers		
Repairs, commercial arc lamps		
General Expense:		
Office salaries		
Office expense		
Registering and collecting.		
Legal expense		
General expense		$1,698 53
Advertising		
Leaseholds, rentals, etc. ...		
Damages		
Depreciation		
Total operating expenses—Electric		$3,380 74

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF THAMESVILLE.

Plant acquired or installed, 1903.
Total assessed valuation of real estate in municipality. ..
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $549,638.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power.
Number municipal arc lamps. None.
Nominal candle power.
Number incandescent lamps supplied: Municipal, 52.
Nominal candle power, 32 C.P.
Amount of power supplied to customers K.W. None.
Number com. incandescents, 1,000 16-C.P.
Price charged for com. arc lamps.
Price charged for com. incandescent lamps, $10 for 32 C.P.
Price charged for electric power per K.W. None.
Cost per public arc lamp. None.
Cost per public incandescent lamp, $5 per year.

Gross earnings from sale of power and lighting	$3,003 44	
From street lighting	635 00	
Sales of meters, etc...	920 65	
		$4,559 09
Less operating expenses		4,500 51
		$58 58
Deductions from net income..		
Interest on debenture debt...		375 90
Sinking fund		
Reconstruction reserve fund ..		..
Other deductions		
Deficit		$317 32
Assets:		
Plant, real estate, building equipment, etc.		$7,500 00
Liabilities:		
Debentures current		$5,496 38

Operating Expenses.

Production:		
Salaries, production	$853 35	
Labour, production.	184 76	
Fuel	1,208 08	
Oil, waste and sundries		23 15
Water	.....	
Water rights	.....	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF THAMESVILLE.—(*Continued.*)

Repairs, buildings and structures	16 61	
Repairs, motive power	.....	
Repairs, electric apparatus	73 73	
Station expense	.....	
Power purchased	.....	
		$2,359 68

Repairs, poles and lines	.....	
Repairs, subways and cables	.....	
Repairs, meters purchased	565 70	
Repairs, transformers	.....	
Repairs, commercial arc lamps	.....	
		$1,547 27

Distribution:		
Salaries, distribution; Sub-station, labour and expense; Distribution expense; Incandescent lamp renewals; Wiring and jobbing; Operating and repairing street lamps; Repairs, sub-station buildings and apparatus	$981 57	
General Expense:		
Office salaries	$12 00	
Office expense	.....	
Registering and collecting	10 00	
Legal expense	100 00	
General expense; Advertising; Leaseholds, rentals, etc.; Damages	471 56	
Depreciation	.....	
		$593 56
Total operating expenses		$4,500 51

ELICTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF WINDSOR.

Plant acquired or installed, 1891.
Total assessed valuation of real estate in municipality, $10,921,625.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910. None.
Motive power. Steam.
Number com. arc lamps supplied. None.
Nominal candle power.
Number municipal arc lamps, 225.
Nominal candle power, 1,200 to 3,000.
Number incandescent lamps supplied: Municipal, 24.
Nominal candle power, 50 C.P.
Amount of power supplied to customers K.W.
Price charged for com. arc lamps, $72 per year.
Price charged for com. incandescent lamps. None.
Price charged for electric power per K.W.
Cost per public arc lamp, $50 per year.
Cost per public incandescent lamp.

Operating Expenses.

Production:		
Salaries, production	$4,545 64	
Labour, production	.....	
Fuel	3,600 00	
Oil, waste and sundries	250 00	
Water	201 25	
Water rights	.....	
Repairs, buildings and structures	.....	
Repairs, motive power	140 00	
Repairs, electric apparatus	314 35	
Station expense and supplies	2,052 53	
Power purchased	.....	
Distribution:		
Salaries, distribution	.....	
Sub-station labour and expense	.....	
Distribution expense	.....	
Incandescent lamp renewals		
Wiring and jobbing	.....	
Operating and repairing street lamps	.....	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	...	
Repairs, subways and cables		
Repairs, meters	.....	
Repairs, transformers	.....	
Repairs, commercial arc lamps		
General Expense:		
Office salaries	.....	
Office expense	.....	
Registering and collecting	..	
Legal expense	.....	
General expense	.....	
Advertising	.....	
Leaseholds, rentals, etc.	....	
Damages	.....	
Depreciation	.....	
Total operating expenses—Electric		$11,103 77

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF WINDSOR.—(*Continued.*)

Gross earnings from sale of power and lighting:		
Com. arc lights ... $756 99		
Com. Incandescent lights ..	50 00	
Sale old material	143 33	
	$950 32	
Operating expenses	$11,103 77	
Deductions from net income ..		
Interest on debenture debt ..		
Sinking fund		
Reconstruction reserve fund ..		
Other deductions		
Deficit		$10,153 45
Assets:		
Plant, real estate, building equipment, etc.		$30,000 00
Liabilities:		
Debentures current		None.

This plant is practically operated for Municipal lighting only, expense of which is borne out of consolidated fund of the City.

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF WINGHAM.

Plant acquired or installed.
Total assessed valuation of real estate in municipality, $804,000.
Amount at par of bonds issued during year for lighting and power purposes. None.
Amount of outstanding debentures, 31st December, 1910, $32,341.22.
Motive power. Steam.
Number com. arc lamps supplied, 10.
Nominal candle power, 1,200 C.P.
Number municipal arc lamps, 30.
Nominal candle power, 2,000 C.P.
Number incandescent lamps supplied: Municipal, 100; Commercial, 7,000.
Nominal candle power.
Amount of power supplied to customers K.W., 4 H.P.
Price charged for com. arc lamps, 10c. K.W.H.
Price charged for com. incandescent lamps, 10 K.W.H.
Price charged for electric power per K.W., 10 K.W.H.
Cost per public arc lamp, $50.
Cost per public incandescent lamp. Not given.

Gross earnings from sale of power and lighting	$9,074 00	
Proceeds of installation and sales of Supplies	2,225 60	
	$11,299 60	
Less operating expenses	8,930 51	
	$2,369 09	
Deductions from net income..		
Interest on debenture debt and debenture paid	$2,296 59	
Sinking fund		
Reconstruction reserve fund ..	..	
Other deductions		
Surplus or deficit	$72 50	
Assets:		
Plant, real estate, building equipment, etc.	$30,000 00	
Liabilities:		
Debentures current	$32,341 22	

Operating Expenses.

Production:		
Salaries, production	$1,041 10	
Labour, production.	39 81	
Fuel	631 39	
Oil, waste and sundries	146 77	
Water	.....	
Water rights	.....	
Repairs, buildings and structures...	1 00	
Repairs, motive power	2,572 94	
Repairs, electric apparatus	32 58	
Station expense	.....	
Power purchased ..	.....	
		$4,465 59
Distribution:		
Salaries, distribution	$1,194 66	
Sub-station labour and expense	.....	
Distribution expense	212 94	
Incandescent lamp renewals	483 76	
Wiring and jobbing.	1,452 84	
Operating and repairing street lamps	45 53	
Repairs, sub-station and apparatus ...	.....	
Repairs, poles and lines	191 31	
Repairs, subways and cables	.....	
Repairs, meters	132 00	
Repairs, transformers	249 80	
Repairs, commercial arc lamps	.....	
		$3,962 86
General Expense:		
Office salaries	$192 50	
Office expense	105 51	
Registering and collecting	.....	
Legal expense	.....	

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF WINGHAM.—(*Continued.*)

General expense ...	89 15	
Advertising	2 80	
Leaseholds, rentals, etc.	.....	
Damages, insurance	112 10	
Depreciation	.....	
		$502 06
Steam Heating Department:		
Total operating expenses		$8,930 51

ELECTRIC LIGHT AND POWER WORKS, MUNICIPALITY OF WOODSTOCK.

Plant acquired or installed, Nov. 27, 1900.
Total assessed valuation of real estate in municipality, $3,840,545.
Amount at par of bonds issued during year for lighting and power purposes, $1,805.49.
Amount of outstanding debentures, 31st December, 1910, $89,985.63.
Motive power. Steam.
Number com. arc lamps supplied, 80.
Nominal candle power, 6 amperes.
Number municipal arc lamps, 90.
Nominal candle power, 6.6 amperes.
Number incandescent lamps supplied: Commercial, 10,300.
Nominal candle power, 16 C.P.
Amount of power supplied to customers K.W. None.
Price charged for com. arc lamps, 8c. per K.W.
Price charged for com. incandescent lamps, 8c. per K.W.
Price charged for electric power per K.W. None.
Cost per public arc lamp, $45 (estimated).
Cost per public incandescent lamp. Not given.

Operating Expenses.

Production:		
Salaries, production	$1,744 00	
Labour, production.	.....	
Fuel	7,139 00	
Oil, waste and sundries	372 70	
Water	.....	
Water rights	.....	
Repairs, buildings and structures ...	.....	
Repairs, motive power	.....	
Repairs, electric apparatus		
Station expense		
Power purchased ..	515 79	
		$9,771 49
Distribution:		
Salaries, distribution	$1,148 20	
Sub-station labour and expense	.....	
Distribution expense	30 85	
Incandescent lamp renewals	.....	
Wiring and jobbing.	734 21	
Operating and repairing street lamps	340 74	
Repairs, sub-station buildings and apparatus	.....	
Repairs, poles and lines	341 63	
Repairs, subways and cables	.....	
Repairs, meters ...	1 85	
Repairs, transformers	65 17	
Repairs, commercial arc lamps	.....	
		$2,662 65
General Expense:		
Office salaries	1,700 00	
Office expense	110 84	
Registering and collecting	.....	
Legal expense	126 80	
General expense ...	.....	
Insurance	165 85	
Leaseholds, rentals, etc.	.....	
Damages	.....	
Depreciation	.....	
		$2,103 49
Total operating expenses		$14,537 63
Gross earnings from sale of power and lighting:		
From com. incandescent lights ...	$904 88	
From com. arc lights	16,100 40	
From street arc lights	5,400 00	
Com. power service.	4,190 20	
Sundries	3 50	
Rent from meters..	1,080 00	
Bank interest	439 90	
		$28,118 88
Operating expenses.	$14.537 63	
Interest on debenture debt	3,019 06	
Sinking fund	2,341 18	
Reconstruction reserve fund	.....	
Other deductions	.....	$19,897 87
Surplus		$8,221 01
Assets:		
Plant, real estate, building equipment, etc.		$85,149 77
Liabilities:		
Debentures current		$89,985 63

PUBLIC UTILITIES, ELECTRIC LIGHT AND POWER PLANTS.

Tabulated Statement Compiled from Returns of Municipalities as at December 31st, 1909.

Name of Municipalities.	Total Investment.	Debenture and other Debts.	Sinking Fund.	Net Debt.	Income.	Total Expenditure.	Surplus.	Deficit.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
*Acton								
*Alexandria								
Almonte	38,000 00	33,073 95	7,504 00	25,569 95	7,402 59	5,620 14	1,782 45	
*Amherstburg								
Aylmer	25,000 00	11,936 21		11,936 21	9,884 64	6,835 33	3,049 31	
Barrie	84,658 90	58,471 91		58,471 91	20,883 75	18,687 68	2,196 07	
Berlin	226,970 36	319,403 26		319,403 26	57,041 85	51,656 47	5,385 38	
Blenheim	10,000 00	906 53		906 53	3,892 60	2,438 04	1,454 56	
Bobcaygeon	26,500 00	23,247 85		23,247 85	2,757 85	2,589 39	168 48	
Bothwell	6,200 00	2,091 15		2,091 15	2,582 31	2,030 97	551 34	
Bracebridge	121,000 00	84,203 29		84,203 29	17,641 99	9,598 95	8,043 04	
Brockville	103,255 43	75,039 39		75,039 39	22,335 91	20,313 19	2,022 72	
*Campbellford								
Chatham	23,500 00	21,075 62				6,063 92		6,063 92
*Clifford								
Collingwood	44,389 10	20,000 00		20,000 00	18,653 16	14,255 66	4,397 50	
*Deseronto								
Dresden	14,500 00	8,112 91		8,112 91	4,847 50	4,093 77	753 73	
Dundalk	6,500 00	3,311 90		3,311 90	2,346 90	2,509 78		162 88
*Fenelon Falls								
Fort Frances	7,500 00	10,000 00		10,000 00	4,416 66	1,155 56	3,261 10	
Fort William	193,022 35	184,573 50		184,573 50	76,936 97	67,588 11	9,348 86	
Guelph	181,482 05	92,500 00		92,500 00	18,284 72	8,281 74	10,082 98	
Hespeler	9,457 79	15,476 85		15,476 85	5,963 40	6,598 55		635 15
*Huntsville								
Iroquois	40,099 87	37,932 61		37,932 61	2,399 59	1,733 53	666 06	
Kenora	387,660 87	556,749 97	40,337 87	516,412 10	63,002 55	59,462 26	3,540 29	
Kincardine	21,196 03	8,007 95	2,721 15	5,286 80	6,611 42	6,588 42	2,300 00	
Kingston	372,877 36	271,025 00		271,025 00	48,816 47	38,462 19	10,354 28	
Madoc	15,836 46	12,100 00		12,100 00	5,790 08	5,201 01	589 07	
*Markham								
*Meaford								
*Merritton								
Midland	50,935 09	35,363 08		35,363 08	5,222 26	2,840 20	2,382 06	
Milton	14,947 85	5,349 95		5,349 95	4,538 65	3,720 39	818 26	
Gravenhurst	77,576 53	83,639 96	267 45	83,372 51	9,181 67	9,106 05	75 62	

*								
Mitchell								
Morrisburg	35,000 00	35,507 60		35,507 60	4,033 60	1,755 60	2,278 00	
Mount Forest	15,000 00	9,736 24		9,735 24	5,835 16	5,700 34	134 82	
Napanee	46,500 00	40,999 93		40,999 93	2,766 30	2,871 08		104 78
Newmarket	18,075 00	12,075 39		12,075 39	6,611 24	6,579 31	31 93	
Niagara	33,000 00	20,010 96		20,010 96	5,210 67	3,859 56	1,351 11	
Niagara Falls	131,943 88	94,291 64		94,291 64	35,761 79	28,046 36	7,715 43	
*North Toronto								
*Orillia								
*Oshawa								
Ottawa	354,086 19	397,411 38		397,411 38	134,646 19	110,856 79	23,789 40	
Owen Sound	120,997 62	121,000 00	23,271 95	97,928 05	35,328 98	30,089 25	5,239 73	
*Palmerston								
Paris	55,324 00	33,000 00		33,000 00	10,653 24	9,969 01	684 23	
*Parry Sound								
Perth	14,000 00	10,400 00		10,400 00	2,599 22	2,767 08		167 86
*Picton								
Port Arthur	383,720 42	372,013 40		372,013 40	118,553 69	107,252 65	11,301 04	
Port Perry	17,500 00	21,746 50		21,746 50	5,677 19	5,311 83	365 36	
*Powassan								
Prescott	31,560 70	16,506 71		16,506 71	9,889 38	9,826 67	62 71	
Preston	52,256 50	50,240 88		50,240 88	11,453 47	11,896 68		443 21
*St. Mary's					10,842 04			
St. Thomas	49,991 63	72,376 82		72,376 82	30,282 32	31,708 11		1,425 79
*Southampton								
Streetsville	27,000 00	20,015 84		20,015 84	1,704 41	1,632 75	71 66	
*Strathroy								
*Sudbury								
Thamesville	7,500 00	5,496 38		5,496 38	4,559 09	4,876 41		317 32
Thessalon	12,968 86	10,975 66		10,975 66	4,908 33	3,930 63	977 70	
Thorold	25,000 00	721 41		721 41	5,490 87	3,428 63	2,062 24	
*Tottenham								
*Waltham								
*Weston								
*Whitby								
*Winchester								
Windsor	30,000 00				950 32	11,103 77		10,153 45
Wingham	30,000 00	32,341 22		32,341 22	11,299 60	11,227 10	72 50	
Woodstock	85,149 77	89,985 63		89,985 63	28,118 88	19,897 87	8,221 01	

*These municipalities have not reported.

GAS WORKS, PUBLIC UTILITIES, MUNICIPALITY OF BELLEVILLE.

Date of vote to establish plant, Jan. 4, 1904.
Date plant installed or acquired.
Total assessed value of real estate municipality, $4,960,935.
Debenture debt in respect of gas plant, $90,000.
Number of street gas lamps, one.
Number of feet of gas sold to general consumers, 16,957,000.
Number of service pipes in use, 1,242.
Cost of street lamp per year, $50.
Gross price per 1,000 cubic feet: $1.75, lighting; $1.35, cooking and heating; $1.25, fuel.
Gross price per 1,000 cubic feet fuel.
Schedule of discounts and minimum charges (if any). None.

Gross earnings from operation:		
For lighting	$3,209,2000 00 (175 cu. ft.)	
For cooking and heating	5,326,000 00 (135 cu. ft.)	$20,710 00
For power and fuel	8,113,500 00 (125 cu. ft.)	2,357 68
Less discounts		
		$23,067 68
From meters		$110 38
From gas stoves and engines, coke sold		1,096 92
From gas lamps (tar coal gas)		392 94
Miscellaneous		
Gross earnings		$24,667 92

Income.

Gross earnings		
Operating expenses		$16,109 07
Net earnings		$8,558 85
Deductions:		
Interest on funded debt	$3,504 80	
Interest on floating debt, sinking fund	558 22	
Other deductions, deb. paid	2,510 54	
		$6,573 56
Total net income.		
Sinking fund		
Reconstruction reserve fund		
Surplus		$1,985 29

Operating Expenses.

Manufacture:		
Salaries, manufacture		
Labour, manufacture		$2,461 43
Labour, purification		92 71
Gas coal		798 21
Enricher (coal gas)		
Bench fuel (coal)		6,415 75
Generator fuel		
Oil (water gas)		1,225 45
Boiler fuel		
Water		100 00
Purification materials		
Residual expense		263 03
Works expense		76 60
Materials (gasolene gas)		
Materials (acetylene gas)		
Repairs, works (coal gas)		
Repairs, works (water gas)		289 69
Repairs, works (general)		45 00
Gas purchased		
Distribution:		
Distribution, salaries		
Complaints and gratuitous work		
Setting and removing meters and regulators		
Operating and repairing street lamps		29 66
Gas stoves and appliances		
Jobbing		696 36
Repairs, mains		59 75
Repairs, services		344 89
Repairs, meters		519 74
a*Operating wells		22 45
a*Operating lines		112 05
a*Repairs, wells		26 28
a*Repairs, lines		
a*Repairs, building and apparatus		108 00
General Expense:		
Salaries of officers		$1,200 00
Office salaries		348 69
Office expense		110 97
Registering and collecting		206 45
b†Legal expense		40 47
General expense		67 75
Advertising		183 03
Canvassing		90 66
Uncollectable accounts		26 00
Taxes		
Insurance		148 00
Franchises		
Leaseholds, rentals, etc.		
Damages, including legal expense connected therewith		
Depreciation (in addition to actual expenditure for repairs, renewals and replacements)		
Total operating expenses		$16,109 07

a*In case natural gas is furnished.
b†Not to include legal expenses connected with damages.

Construction and equipment	
Value of land occupied by plant	$1,400 00

GAS WORKS, PUBLIC UTILITIES, MUNICIPALITY OF BELLEVILLE.—(*Continued.*)

Value of buildings	12,087 03	Further assets	7,865 78
Value of machinery and apparatus	17,936 46		$90,000 00
Value of street mains	13,069 29		
Value of services	3,457 25		
Value of meters	9,290 36	Debenture debt	$90,000 00
Value of street lamps and fixtures	100 00	Over draft	
Value of tools and appliances.	480 52	Other indebtedness	90,000 00
Value of staple equipment, testing apparatus	110 00	Total debt	
Holders	22,671 05		
Value of other assets	1,532 25	Amount invested in sinking fund	
Total assets	$82,134 22		

GAS WORKS, MUNICIPALITY OF BERLIN.

Date of vote to establish plant, 1903.
Date plant installed or acquired.
Total assessed value of real estate municipality, $6,780,334.
Debenture debt in respect of gas plant, $140,735.20.
Number of street gas lamps. None.
Number of feet of gas sold to general consumers, 26,907,000 feet.
Number of service pipes in use. Not given.
Cost of street lamp per year. Not given.
Gross price per 1,000 cubic feet lighting. $1,40, less 25%.
Gross price per 1,000 cubic feet fuel, $1.40, less 25%.
Schedule of discounts and minimum charges (if any), 25% for prompt payment.

Operating Expenses.

Manufacture:		Operating and repairing street lamps	
Salaries, manufacture	$610 41	Gas stoves and appliances	
Labor, manufacture	4,818 64	Jobbing	244 94
Labor, purification		Repairs, mains	175 32
Gas coal		Repairs, services	
Enricher (coal gas)	13,337 67	Repairs, meters	
Bench fuel		a*Operating wells	488 63
Generator fuel		a*Operating lines	
Oil (water gas)		a*Repairs, wells	
Boiler fuel	907 65	a*Repairs, lines	
Water	1,730 09	a*Repairs, buildings and apparatus	
Purification materials			
Residual expense	132 25	General Expense:	
Works expense	381 36	Salaries of officers	
Materials (gasolene gas)	489 88	Office salaries	
Materials (acetylene gas)		Office expense	$1,487 17
Repairs, works (coal gas)		Registering and collecting	151 96
Repairs, works (water gas)	1,207 75	b†Legal expense	129 03
Repairs, works (general)	263 86	General expense	
Gas purchased	1,060 48	Advertising	263 28
		Canvassing	11 00
Distribution:		Uncollectable accounts	15 64
Distribution, salaries	$256 98	Taxes	90 67
Complaints and gratuitous work	79 60	Insurance	21 97
Setting and removing meters and regulators	151 72	Franchises	312 99
		Leaseholds, rentals, etc.	12 24
		Damages, including legal expense connected therewith	
		Depreciation (in addition to actual expenditure for repairs, renewals and replacements)	2,974 93
		Total operating expenses	$31,807 11

a*In case natural gas is furnished.
b†Not to include legal expenses connected with damages.

Gross earnings from operation:		
For lighting	$33,020 96	
For cooking and heating		
For power		
Less discounts		$5,116 09

GAS WORKS, MUNICIPALITY OF BERLIN.—(*Continued.*)

From coke sold	
From tar gas	$511 65
From gas lamps	79 49
Miscellaneous	
Gross earnings	$38,728 19

Income.

Gross earnings	
Operating expenses	$31,807 11
Net earnings	$6,921 08
Deductions	
Interest on funded debt	$5,519 98
Interest on floating debt	
Other deductions	
Total net income	$1,401 10
Sinking fund	
Reconstruction reserve fund	
Surplus	$1,401 10

Construction and equipment	
Value of land occupied by plant	
Value of buildings	
Value of machinery and apparatus	
Value of street mains	
Value of services	
Value of meters	
Value of street lamps and fixtures	
Value of tools and appliances	
Value of staple equipment	
Value of other assets	
Total assets	$153,594 35
Debenture debt gas and electric plants, proportion estimated, relating to gas plant	$319,403 26
Other indebtedness	
	$140,735 20
Total debt	
Amount invested in sinking fund	

GAS WORKS, MUNICIPALITY OF BROCKVILLE.

Date of vote to establish plant.
Date plant installed or acquired, 31 July, 1900.
Total assessed value of real estate municipality, $4,443,695.
Debenture debt in respect of gas plant, $82,427.34.
Number of street gas lamps, 54.
Number of feet of gas sold to general consumers, 26,832,800.
Number of service pipes in use, 1,400.
Cost of street lamp per year. Not given.
Gross price per 1,000 cubic feet lighting, $1.25, 10% discount.
Gross price per 1,000 cubic feet fuel, $1.25 10% discount.
Schedule of discounts and minimum charges (if any), 10% for prompt payment.

Gross earnings from operation. For cooking and heating	$28,410 96	
For public buildings	5,805 00	
For street lighting.	880 00	
From other sources.	41 97	
		$35,137 93
From meters		
From gas stoves and engines		
From gas lamps		
Miscellaneous		
Gross earnings		$35,137 93

Income.

Gross earnings	$25,698 62
Operating expenses	
Net earnings	$9,439 31
Deductions:	
Interest on funded debt	$2,996 91
Interest on floating debt	
Other deductions	
Total net income	$6,442 40
Surplus	$6,442 40

Operating Expenses.

Manufacture:	
Salaries, manufacture	$1,975 00
Labor, manufacture	200 00
Labor, purification	222 12
Gas coal	
Enricher (coal gas)	
Bench fuel	
Generator fuel	
Oil (water gas)	$5,320 40
Boiler fuel	6,491 24
Water	1,369 09
Purification materials	
Residual expense	106 35
Works expense	
Materials (gasolene gas)	635 28
Materials (acetylene gas)	
Repairs, works (coal gas)	
Repairs, works (water gas)	

GAS WORKS, MUNICIPALITY OF BROCKVILLE.—(*Continued.*)

Repairs, works (general) ..	176 18	Damages, including legal expense connected therewith	
Gas purchased	203 07	Depreciation (in addition to actual expenditure for repairs, renewals and replacements)	$4,958 04
Distribution:		Total operating expenses	$25,698 62
Distribution, salaries	$443 96		
Complaints and gratuitous work	216 00	a*In case natural gas is furnished.	
Setting and removing meters and regulators	250 00	b†Not to include legal expenses connected with damages.	
Operating and repairing street lamps			
Gas stoves and appliances..			
Jobbing			
Repairs, mains	78 50	Construction and equipment ..	
Repairs, services	132 18	Value of land occupied by plant	$3,750 00
Repairs, meters	356 58	Value of buildings	8,520 00
a*Operating wells		Value of machinery and apparatus	44,020 00
a*Operating lines		Value of street mains	22,950 00
a*Repairs, wells		Value of services	4,800 00
a*Repairs, lines		Value of meters	8,925 00
a*Repairs, building and apparatus		Value of street lamps and fixtures	
		Value of tools and appliances..	
General Expense:		Value of other real estate	2,250 00
Salaries of officers	$1,100 00	Value of other assets	18,055 44
Office salaries		Total assets	$113,270 44
Office expense	354 77		
Registering and collecting ..		Debenture debt	$82,427 34
b†Legal expense		Over draft	
General expense	789 13	Other indebtedness	
Advertising		Total debt	
Canvassing			
Uncollectable accounts		Amount invested in sinking fund	
Taxes			
Insurance	320 73		
Franchises			
Leaseholds, rentals, etc.			

GAS WORKS, MUNICIPALITY OF DESERONTO.

Date of vote to establish plant, 1907.
Date plant installed or acquired, 1907.
Total assessed value of real estate municipality, $869,985.
Debenture debt in respect of gas plant, $20,000.
Number of street gas lamps, 54.
Number of feet of gas sold to general consumers, 3,839,800 feet.
Number of service pipes in use, 160.
Cost of street lamp per year. Not given.
Gross price per 1,000 cubic feet lighting, $1.90.
Gross price per 1,000 cubic feet fuel, $1.20.
Schedule of discounts and minimum charges, if any, 2% discount allowed for prompt payment.

Gross earnings from operation		From gas lamps	
For lighting	$5,421 75	Miscellaneous	
For cooking and heating		Gross earnings	$5,446 50
For power			
Less discounts	$5,421 75	*Income.*	
From meters	$24 75	Gross earnings	
From gas stoves and engines .		Operating expenses	$6,884 58
		Net loss	$1,438 08
		Deductions	
		Interest on funded debt	900 00
		Interest on floating debt ...	
		Other deductions	
		Total net loss.....	$2,338 08
		Sinking fund	
		Reconstruction reserve fund ..	
		Deficit	$2,338 08

Operating Expenses.

Manufacture:
Salaries, manufacture .....

GAS WORKS, MUNICIPALITY OF DESERONTO.—(*Continued.*)

Labor, manufacture	$936 00	Advertising	
Labor, purification		Canvassing	
Gas coal	2,580 07	Uncollectable accounts	
Enricher (coal gas)		Taxes	
Bench fuel		Insurance	
Generator fuel		Franchises	
Oil (water gas)	2,024 76	Leaseholds, rentals, etc.	
Boiler fuel		Damages, including legal expenses connected therewith	
Water		Depreciation (in addition to actual expenditure for repairs, renewals and replacements)	
Purification materials			
Residual expense		Total operating expenses	$6,884 58
Works expense			
Materials (gasolene gas)		a*In case natural gas is furnished.	
Materials (acetylene gas)		b†Not to include legal expenses connected with damages.	
Repairs, works (coal gas)			
Repairs, works (water gas)	1,343 75		
Repairs, works (general)			
Gas purchased			

Distribution:		Construction and equipment	
Distribution, salaries		Value of land occupied by plant	
Complaints and gratuitous work		Value of buildings	
Setting and removing meters and regulators		Value of machinery and apparatus	
Operating and repairing street lamps		Value of street mains	
Gas stoves and appliances		Value of services	
Jobbing		Value of meters	
Repairs, mains		Value of street lamps and fixtures	
Repairs, services		Value of tools and appliances	
Repairs, meters		Value of staple equipment	
a*Operating wells		Value of other assets	
a*Operating lines		Total assets	$23,000 00
a*Repairs, wells			
a*Repairs, lines			
a*Repairs, building and apparatus		Debenture debt $20,000	
		Over draft	
General Expense:		Other indebtedness	
Salaries of officers			$20,000 00
Office salaries		Total debts	
Office expense			
Registering and collecting		Amount invested in sinking fund	
b†Legal expense			
General expense			

GAS WORKS, MUNICIPALITY OF GUELPH.

Date of vote to establish plant.
Date plant installed or acquired, Jan. 5, 1903.
Total assessed value of real estate municipality.
Debenture debt in respect of gas plant.
Number of street gas lamps. None.
Number of feet of gas sold to general consumers, 44,004,400.
Number of service pipes in use, 1,768.
Cost of street lamp per year. Not given.
Gross price per 1,000 cubic feet lighting, $1.50 per 1,000 feet.
Gross price per 1,000 cubic feet fuel, $1.50 per 1,000 feet.
Schedule of discounts and minimum charges, if any, 50 discount for prompt payment.

Gross earnings from operation		
For lighting	$66,006 60	
For cooking and heating		
For power		
Less discounts		$21,312.35
From meters		44,694 25
From gas stoves and engines.		11,082 44
From coke and tar		
Setting meters, etc.		255 75
Ammonia		326 43
Gross earnings		$56,358 87

GAS WORKS, MUNICIPALITY OF GUELPH.—(*Continued.*)

Income.

Operating expenses		$36,391 05
Net earnings		$19,967 82
Deductions		
Interest on funded debt	$5,443 87	
Sinking fund	2,757 87	
		$8,201 74
Other deductions		11,766 08
Total net income		
Sinking fund		
Reconstruction reserve fund		
Surplus or deficit		$11,766 08

Operating Expenses.

Manufacture:	
Salaries, manufacture	$596 50
Labor, manufacture	5,197 75
Labor, purification	547 75
Gas coal	15,514 62
Enricher (coal gas)	
Bench fuel	4,000 00
Generator fuel	650 00
Oil (water gas)	750 17
Boiler fuel	1,000 00
Water	142 45
Purification materials	453 48
Residual expense	1,462 56
Works expense	186 06
Materials (gasolene gas)	
Materials (acetylene gas)	
Repairs, works (coal gas)	262 09
Repairs, works (water gas)	22 25
Repairs, works (general)	676 94
Gas purchased	
Distribution:	
Distribution, salaries	$395 00
Complaints and gratuitous work	200 00
Setting and removing meters and regulators	206 67
Operating and repairing street lamps	
Gas stoves and appliances	
Jobbing	
Repairs, mains	850 00
Repairs, services	196 55
Repairs, meters	741 51
a*Operating wells	
a*Operating lines	
a*Repairs, wells	
a*Repairs, lines	
a*Repairs, building and apparatus (gas inspector)	392 50
General Expense:	
Salaries of officers	
Office salaries	780 31
Office expense	160 57
Registering and collecting	220 65
b†Legal expense	59 45
General expense	62 25
Advertising	
Canvassing	
Uncollectable accounts	
Taxes	179 04
Insurance	296 43
Franchises	
Leaseholds, rentals, etc.	187 50
Damages, including legal expense connected therewith	
Depreciation (in addition to actual expenditure for repairs, renewals and replacements)	
Total operating expenses	$36,391 05

a*In case natural gas is furnished.
b†Not to include legal expenses connected with damages.

Construction and equipment		
Value of land occupied by plant		$8,790 00
Value of buildings		21,300 00
Value of machinery and apparatus		90,687 27
Value of street mains		46,028 33
Value of services		20,244 00
Value of meters		11,653 36
Value of street lamps and fixtures		
Value of tools and appliances		
Value of staple equipment		
Value of other assets		2,437 44
Total assets		$201,140 40
Debenture debt	$118,000 00	
Overdraft		
Other indebtedness		
Total debt		
Amount invested in sinking fund		$6,770 94
Net debt		$111,229 06

GAS WORKS, MUNICIPALITY OF KINGSTON.

Date of vote to establish plant,
Date plant installed or acquired, Aug. 1, 1904.
Total assessed value of real estate municipality, $7,646,154.
Debenture debt in respect of gas plant and electric light plant, $285,575.
Number of street gas lamps. None.
Number of feet of gas sold to general consumers. 40,561,700 feet.

GAS WORKS, MUNICIPALITY OF KINGSTON.—(*Continued.*)

Number of service pipes in use, 1,699.
Cost of street lamp per year. None.
Gross price per 1,000 cubic feet lighting, $1.00 net.
Gross price per 1,000 cubic feet fuel, $1.00 net.
Schedule of discounts and minimum charges, if any. None.

Gross earnings from operation	
For lighting	
For cooking and heating	$40,760 44
For power	
Less discounts	
From meters	$3,696 54
From gas stoves and engines	
From gas lamps	
Miscellaneous	
Gross earnings	$44,456 98

Income.

Gross earnings	
Operating expenses	$27,739 88
Net earnings	$16,717 10
Deductions:	
Interest on funded debt	$8,986 67
Interest on floating debt	
Other deductions	
Total net income	
Sinking fund	
Reconstruction reserve fund	
Surplus	$7,730 43

Operating Expenses.

Manufacture:	
Salaries, manufacture	$1,393 38
Labor, manufacture	4,349 02
Labor, purification	
Gas coal	6,192 64
Enricher (coal gas)	
Bench fuel	
Generator fuel	
Oil (water gas)	6,414 85
Boiler fuel	1,659 29
Water	26 36
Purification materials	408 14
Residual expense	
Works expense	73 88
Materials (gasolene gas)	
Materials (acetylene gas)	
Repairs, works (coal gas)	
Repairs, works (water gas)	
Repairs, works (general)	
Gas purchased	8 17
Distribution:	
Distribution, salaries	
Complaints and gratuitous work	
Setting and removing meters and regulators	
Operating and repairing street lamps	
Gas stoves and appliances	
Jobbing	90 15
Repairs, mains	937 17
Repairs, services	513 44
Repairs, meters	1,670 46
a*Operating wells	
a*Operating lines	
a*Repairs, wells	127 70
a*Repairs, lines	
a*Repairs, building and apparatus	
General Expense:	
Salaries of officers	562 50
Office salaries	
Office expense	100 10
Registering and collecting	252 25
b†Legal expense	
General expense	200 81
Advertising	
Canvassing	
Uncollectable accounts	370 80
Taxes	2,129 88
Insurance	258 87
Franchises	
Leaseholds, rentals, etc.	
Damages, including legal expense connected therewith	
Depreciation (in addition to actual expenditure for repairs, renewals and replacements)	
Total operating expenses	$27,739 86

a*In case natural gas is furnished.
b†Not to include legal expenses connected with damages.

Construction, organization	$5,964 14
Value of land occupied by plant	
Value of buildings	
Value of machinery and apparatus	$63,662 41
Value of street mains	76,677 28
Value of services	12,609 41
Value of meters	17,035 39
Value of street lamps and fixtures	
Value of tools and appliances.	
Value of staple equipment	
Value of other assets	
Total assets	$175,948 63
Debenture debt, including debentures issued in connection with electric lighting plant	$271,025 00
Overdraft	
Other indebtedness	
Total debt	

Amount invested in sinking fund. None.

Gas Works, Municipality of Owen Sound.

Date of vote to establish plant, 1903.
Date plant installed or acquired, 1903.
Total assessed value of real estate municipality, $7,004,025.
Debenture debt in respect of gas plant, $109,000.
Number of street gas lamps. None.
Number of feet of gas sold to general consumers, 15,861,500 feet.
Number of service pipes in use, 734.
Cost of street lamp per year. None.
Gross price per 1,000 cubic feet lighting, $1.50, gross; $1.20, net.
Gross price per 1,000 cubic feet fuel, $1.50 gross; $1.20 net.
Schedule of discounts and minimum charges, if any, 30c. per 1,000 feet.

Gross earnings from operation	$20,833 80	
For lighting		
For cooking and heating		
For power		
Less discounts	$20,833 80	
From coke sold	$3,197 53	
From tar sold	629 21	
From interest on securities	823 69	
Miscellaneous		
Gross earnings	$25,484 23	

Income.

Gross earnings		
Operating expenses	$14,233 59	
Net earnings	$11,250 64	
Deductions:		
Interest on funded debt	$4,072 50	
Interest on floating debt	157 32	
Other deductions, debentures discount	117 24	
	4,347 06	
Total net income	$6,903 58	
Sinking fund	$4,509 40	
Reconstruction reserve fund		
Surplus	$2,394 18	

Operating Expenses.

Manufacture:		
Salaries, manufacture and distribution	$1,100 00	
Labor, manufacture and distribution	3,209 65	
Labor, purification		
Gas coal		
Enricher (coal gas)		
Bench fuel		
Generator fuel		
Oil (water gas)		
Boiler fuel		
Water		
Purification materials		
Residual expense		$9,189 93
Works expense		
Materials (gasolene gas)		
Materials (acetylene gas)		
Repairs, works (coal gas)		
Repairs, works (water gas)		
Repairs, works (general)		
Gas purchased		
		$13,499 58
Distribution:		
Distribution, salaries		
Complaints and gratuitous work		
Setting and removing meters and regulators		
Operating and repairing street lamps		
Gas stoves and appliances		
Jobbing		
Repairs, mains		
Repairs, services		
Repairs, meters		
a*Operating wells		
a*Operating lines		
a*Repairs, wells		
a*Repairs, lines		
a*Repairs, building and apparatus		
General Expense:		
Salaries of officers	$331 25	
Office salaries		
Office expense	239 41	
Registering and collecting		
b†Legal expense		
General expense		
Advertising		
Canvassing		
Uncollectable accounts		
Taxes		
Insurance	163 35	
Franchises		
Leaseholds, rentals, etc.		
Damages, including legal expense connected therewith		
Depreciation (in addition to actual expenditure for repairs, renewals and replacements)		
		$734 01
Total operating expenses		$14,233 59

GAS WORKS. MUNICIPALITY OF OWEN SOUND.—(*Continued.*)

a*In case natural gas is furnished.
b†Not to include legal expenses connected with damages.

Construction and equipment		
Value of land occupied by plant		
Value of buildings		
Value of machinery and apparatus		
Value of street mains		
Value of services	$93,400 00	
Value of meters		
Value of street lamps and fixtures		
Value of tools and appliances		
Value of staple equipment		
Value of other assets		
Total assets		$93,400 00
Debenture debt		$99,000
Overdraft		
Other indebtedness		
Total debt		$99,000 00
Amount invested in sinking fund		$24,722 68
		$74,277 32

GAS WORKS, MUNICIPALITY OF ST. THOMAS.

Date of vote to establish plant, Jan. 2, 1905.

Date plant installed or acquired.

Total assessed value of real estate municipality, $7,715,925.

Debenture debt in respect of gas plant and electric lighting plant, $217,130.46.

Number of street gas lamps, 107.

Number of feet of gas sold to general consumers, 55,149,700 feet.

Number of service pipes in use, 2,600.

Cost of street lamp per year, $20.

Gross price per 1,000 cubic feet lighting, $1.00, less 10%.

Gross price per 1,000 cubic feet fuel, $1.00, less 10%.

Schedule of discounts and minimum charges, if any, 10 discount for prompt payment.

Gross earnings from operation		
For lighting	$51,112 24	
For cooking and heating		
For street lighting	2,140 00	
Less discounts		
From meters	$94 05	
From sale coke and tar	11,962 76	
From gas lamps		
Miscellaneous	303 80	
Gross earnings		$65,612 85

Income.

Gross earnings		
Operating expenses		$46,371 48
Net earnings		$19,241 37
Deductions:		
Interest on funded debt		
Interest on floating debt	$6,582 09	
Other deductions		
Total net income		$12,659 28
Sinking fund		
Reconstruction reserve fund		
Surplus		$12,659 28

Operating Expenses.

Manufacture:		
Salaries, manufacture and and wages		$12,877 42
Labor, manufacture		
Labor, purification		
Gas coal	21,846 63	
Enricher (coal gas)		
Bench fuel		
Generator fuel		
Oil (water gas)	1,635 96	

GAS WORKS, MUNICIPALITY OF ST. THOMAS.—(*Continued.*)

Boiler fuel		Insurance	600 78
Water		Franchises	
Purification materials		Leaseholds, rentals, etc.	
Residual expense		Damages, including legal expense connected therewith, 2%	3,912 38
Works expense		Depreciation (in addition to actual expenditure for repairs, renewals and replacements)	
Works expense			
Materials (gasolene gas)			
Materials (acetylene gas)			
Repairs, works (coal gas)			
Repairs, works (water gas)			
Repairs, works (general)			
Gas purchased		Total operating expenses	$46,371 48
Distribution:		a*In case natural gas is furnished.	
Distribution, salaries		b†Not to include legal expenses connected with damages.	
Complaints and gratuitous work			
Setting and removing meters and regulators		Construction and equipment	
Operating and repairing street lamps	$2,134 27	Value of land occupied by plant	
Gas stoves and appliances		Value of buildings	
Jobbing		Value of machinery and apparatus	
Repairs, mains		Value of street mains	No details furnished.
Repairs, services		Value of services	
Repairs, meters		Value of meters	
a*Operating wells		Value of street lamps and fixtures	
a*Operating lines		Value of tools and appliances	
a*Repairs, wells		Value of staple equipment	
a*Repairs, lines		Value of other assets	
a*Repairs, building and apparatus			
General Expense:		Total assets	$203,201 50
Salaries of officers			
Office salaries		Debenture debt, including debentures issued to cover cost of electric lighting plant	
Office expense		Overdraft	
Registering and collecting		Other indebtedness	
b†Legal expense			
General expense		Total debt	$217,130 46
Advertising			
Canvassing			
Uncollectable accounts		Amount invested in sinking fund	
Taxes	3,364 04		

GAS WORKS, MUNICIPALITY OF WATERLOO.

Date of vote to establish plant, 1904.
Date plant acquired, 1904.
Total assessed value of real estate municipality, $2,415,178.
Debenture debt in respect of gas plant, $32,514.29.
Number of street gas lamps, 9.
Number of feet of gas sold to general consumers, 5,102,515 feet.
Number of service pipes in use, 58.
Cost of street lamp per year. Not given.
Gross price per 1,000 cubic feet lighting, $1.40, 10% discount.
Gross price per 1,000 cubic feet fuel, $1.40, 10% discount.
Schedule of discounts and minimum charges, if any. None.

Gross earnings from operation		
For lighting	$7,143 52	
For cooking and heating		
For power	510 25	
Less discounts		$6,633 27
From meters		355 23
From gas stoves and engines.		
From gas lamps, street lighting		270 00
Miscellaneous		
Gross earnings		$7,258 80

GAS WORKS, MUNICIPALITY OF WATERLOO.—(*Continued.*)

Income.

Gross earnings		
Operating expenses		$4,054 21
Net earnings		$3,204 59
Deductions:		
Interest on funded debt	$1,361 70	
Interest on floating debt		
Other deductions, debentures paid	554 19	
		$1,915 89
Total net income		
Sinking fund		
Reconstruction reserve fund		
Surplus		$1,288 70

Operating Expenses.

Manufacture:	
Salaries, manufacture	
Labor, manufacture	$1,020 70
Labor, purification	
Gas coal	
Enricher (coal gas)	
Bench fuel	
Generator fuel	950 09
Oil (water gas)	909 84
Boiler fuel	201 44
Water	160 23
Purification materials	
Residual expense	
Works expense	
Materials (gasolene gas)	
Materials (acetylene gas)	
Repairs, works (coal gas)	
Repairs works (water gas)	223 86
Repairs, works (general)	
Gas purchased	
Distribution:	
Distribution, salaries	
Complaints and gratuitous work	
Setting and removing meters meters and regulators	
Operating and repairing street lamps	
Gas stoves and appliances	
Jobbing	
Repairs, mains	$5 51
Repairs, services	10 79
Repairs, meters	89 94
a*Operating wells	
a*Operating lines	
a*Repairs, wells	
a*Repairs, lines	
a*Repairs, buildings and apparatus	
General Expense:	
Salaries of officers	
Office salaries	$200 00
Office expense	53 10
Registering and collecting	
b†Legal expense	
General expense	
Advertising	151 71
Canvassing	
Uncollectable accounts	
Taxes	
Insurance	
Franchises	77 00
Leaseholds, rentals, etc.	
Damages, including legal expense connected therewith	
Depreciation (in addition to actual expenditure for repairs, renewals and replacements)	
Total operating expenses	$4,054 21

a*In case natural gas is furnished.
b†Not to include legal expenses connected with damages.

Construction and equipment		
Value of land occupied by plant	$400 00	
Value of buildings	2,000 00	
Value of machinery and apparatus	19,939 30	
Value of street mains	11,394 30	
Value of services	2,705 73	
Value of meters	2,372 34	
Value of street lamps and fixtures		
Value of tools and appliances	323 39	
Value of staple equipment		
Total assets		$39,135 06
Debenture debt		$32,514 29
Overdraft		
Other indebtedness		
Total debt		$32,514 29

Amount invested in sinking fund, None.

PUBLIC UTILITIES, GAS WORKS.

Tabulated Statements Compiled from Reports of Municipalities as at 31st December, 1910.

Municipality.	Capital Invested.	Debentures and Other Debts.	Sinking Fund.	Net Debt.	Income.	Expenditure.	Surplus	Deficit.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.
Belleville	90,000 00	90,000 00	.....	90,000 00	24,667 92	22,682 63	1,985 29	.....
Berlin	153,594 35	140,735 20	.....	140,735 20	38,728 19	37,327 09	1,401 10	.....
Brockville	113,27, 44	82,427 34	.....	82,427 34	35,137 93	28,695 53	6,442 40	.....
Deseronto	23,000 00	20,000 00	.....	20,000 00	5,446 50	7,784 58	.....	2,338 08
Guelph	201,140 40	118,000 00	6,770 94	111,229 06	56,358 87	44,592 79	11,766 08	.....
Kingston	175,948 63	271,025 00	.....	271,025 00	44,456 98	36,726 55	7,730 43	.....
Owen Sound	93,400 00	99,000 00	24,722 68	74,277 32	25,484 23	23,090 05	2,394 18	.....
St. Thomas	203,201 50	217,130 46	.....	217,130 46	65,612 85	52,953 57	12,659 28	.....
Waterloo	39,135 06	32,514 29	.....	32,514 29	7,258 80	5,970 10	1,288 70	.....
							45,667 46	2,338 08
Totals	1,092,690 38	1,070,832 29	31,493 62	1,039,338 67	303,152 27	259,822 89	43,329 38	

Water Works, Municipality of Arnprior.

Plant installed, 1901.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 120,000,000.
Total daily capacity of pumps, 518,400 gals.
Average daily consumption, 328,000.
Cost of production for 1,000 gallons, .08,02.
Population of municipality, 4,395.

Capital Expenditure.

Reservoirs and Tanks	$2,783 00
Cost of filters and beds	6,350 00
Cost of hydrants	40,346 77
Cost of pumping equipment	8,350 00
Cost of real estate and buildings	4,829 00
Other assets	15,590 00
Total assets	$78,248 77
Debentures or bonds current.	$46,202 10
Bank overdraft	
Municipal overdraft	
Total liabilities	$46,202 10
Gross earnings	$5,932 62
From sale of water	
By meter	
By contract	
From sale of meters	
From permits tapping mains	
From other sources	
Total income	
Less operating expenses	$9,627 93
Deficiency for year	$3,695 31

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,630 25	
Office supplies and expenses	24 50	
Insurance	30 00	
Legal expenses and damages		
Other expenses	3 10	
Wages	728 19	
		$2,416 04
Supplies—Fuel		
Pumping station supplies		$4,576 02
Filtration supplies		213 42
Other supplies		8 00
For repairs and renewals		$498 53
Interest on bonds or loans		1,915 92
Total cost of production		$9,627 93

Water Works, Municipality of Aylmer.

Plant installed, 1897.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 47,450,000 gals.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 2,099.

Gross earnings:		
From sale of water		
By meter	$2,564 41	
By contract	1,000 00	
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$3,564 41
Less operating expenses		2,595 55
Surplus		$968 86
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$840 71	
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses	254 84	
Wages		
		$1,095 55
Supplies—Fuel		
Steam power supplied by Electric Light Dept.		$1,500 00
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals		
Interest on bonds or loans		
Interest on debentures paid by town		
Total cost of production.		$2,595 55

Capital Expenditure.

Reservoirs	No details given.
Cost of mains	
Cost of service pipes	
Cost of hydrants	
Cost of real estate and buildings	
Other assets	
Total assets	$100,000 00
Debentures of bonds current.	$63,724 28
Bank overdraft	
Municipal overdraft	
Total liabilities	$63,724 28

Water Works, Municipality of Barrie.

Plant installed, 1890.
Acquired by municipality 1898.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 71,452,200 gals.
Total daily capacity of pumps, 2,000,000 gals.
Average daily consumption, 191,000 gals.
Cost of production for 1,000 gallons, .14.3.
Population of municipality, 6,500.

Gross earnings:		
From sale of water	$9,881 51	
By meter	.....	
By contract	.....	
From sale of meters and hydrants	3,525 00	
From permits tapping mains	.....	
From other sources	79 35	
Total income		$13,485 86
Less operating expenses		10,201 95
Surplus for year		$3,283 91
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$2,111 85	
Office supplies and expenses	43 00	
Insurance	54 82	
Legal expenses and damages	.....	
Other expenses	.....	
Wages	.....	
		$2,209 67
Supplies—Fuel	$1,106 69	
Pumping station supplies	42 05	
Filtration supplies.		
Other supplies	481 33	
		$1,630 07
For repairs and renewals	.....	.....
Interest on bonds or loans	$3,147 52	
Debentures paid	3,214 69	$6,362 21
Total cost of production.		$10,201 95

Capital Expenditure.

Reservoirs		
Cost of mains ..	original purchase	$94,095 69
Cost of service pipes		
Cost of hydrants	additions thereto	29,092 13
Cost of real estate and buildings.....		
Other assets		4,923 75
Total assets		$128,111 57
Debentures or bonds current.		$84,796 06
Bank overdraft		.....
Prepayments		80 00
Municipal overdraft		.....
Total liabilities		$84,876 06

Water Works, Municipality of Belleville.

Plant installed, 1880.
Gravity or pumping system. Gravity.
Number of gallons pumped per year, 491,268,111.
Total daily capacity of pumps, 121 millions.
Average daily consumption, 134,000 gals.
Cost of production for 1,000 gallons, .042.
Population of municipality, 10,112.

Gross earnings:		
From sale of water	.....	
By meter	$4,000 00	
By contract	23,382 05	
From sale of meters	.....	
From permits tapping mains		
From other sources	.....	
Total income		$27,382 05
Less operating expenses		$20,704 35
Surplus for year		$6,677 70
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,176 00	
Office supplies and expenses	.....	
Insurance	45 00	
Legal expenses and damages	.....	
Other expenses	.....	.....
Wages	1,860 00	
		$3,081 00
Supplies—Fuel	.....	.....
Pumping station supplies	$5,869 90	
Filtration supplies	159 90	$6,029 80
Other supplies	.....	.....
For repairs and renewals	.....	212 38
Interest on bonds or loans	.....	11,103 38
		$20,426 56
Other expenses	.....	277 79
Total cost of production		$20,704 35

WATER WORKS, MUNICIPALITY OF BELLEVILLE.—(*Continued.*)

Capital Expenditure.

Reservoirs		
Cost of mains	$167,758 39	
Cost of service pipes	144,617 54	
Cost of hydrants		
Cost of real estate and buildings		
Other assets, $2,116.04; Cash, $426.20	2,542 24	
Total assets		$314,918 17

Debentures or bonds current		$192,000 00
Bank overdraft		
Municipal overdraft		26,843 79
Total liabilities		$218,843 79
Sinking fund		$45,745 27
Net debts		$173,098 52

WATER WORKS, MUNICIPALITY OF BERLIN.

Plant installed, 1888.
Acquired by municipality, 1898.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 320,060,500.
Total daily capacity of pumps, 2,000,000 gals.
Average daily consumption, 877,000 gals.
Cost of production per 1,000 gallons, 5c.
Population of municipality, 14,600.

Gross earnings:		
From sale of water	$19,887 80	
By meter	3,004 78	
By contract		
From sale of meters	2,175 40	
From permits tapping mains	5,850 00	
From other sources	2,626 62	
Total income		$33,544 60
Less operating expenses		16,083 68
Surplus for year		$17,460 92

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$2,157 50	
Office supplies and expenses	575 89	
Insurance	10 60	
Legal expenses and damages		
Other expenses	182 15	
Wages	2,642 50	
		$5,568 04
Supplies—Fuel		$5,420 08
Pumping station supplies		415 78
Filtration supplies		
Other supplies		253 65
For repairs and renewals		793 08
Interest on bonds or loans		3,633 05
Total cost of production		$16,083 68

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants, Cost of real estate and buildings, Other assets		$244,528 44
Total assets		$244,528 44
Debentures or bonds current		$90,165 56
Bank overdraft		
Municipal overdraft		
Total liabilities		$90,165 56

WATER WORKS, MUNICIPALITY OF BRACEBRIDGE.

Plant installed, 1895.
Gravity or pumping system. Gravity and pumping.
Number of gallons pumped per year, 30,660,000.
Total daily capacity of pumps, 2,102,400 gals.
Average daily consumption, 98,600 gals.
Cost of production for 1,000 gallons, 09.17.
Population of municipality, 3,000.

Gross earnings:		
From sale of water, By meter, By contract		$3,341 75
From sale of meters		
From permits tapping mains		
From other sources		$1,250 00
Total income		$4,591 75
Less operating expenses		2,812 41
Surplus for year		$1,779 34

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$718 75	
Office supplies and expenses		10 00
Insurance		42 00
Legal expenses and damages		
Other expenses		10
Wages		62 47
		$833 32

WATER WORKS, MUNICIPALITY OF BRACEBRIDGE.—(*Continued.*)

Supplies—Fuel	$26 25	
Pumping station supplies		
Filtration supplies	10 40	
Other supplies		
For repairs and renewals	185 60	
Interest on bonds or loans	1,756 94	
Total cost of production	$2,812 41	

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$46,879 35
Cost of real estate and buildings		
Other assets		
Total assets		$46,879 35
Debentures or bonds current		$34,217 82
Bank overdraft		
Municipal overdraft		
Total liabilities		$34,217 82

WATER WORKS, MUNICIPALITY OF BRAMPTON.

Plant installed, 1881.
Gravity or pumping system. Gravity and pumping.
Number of gallons pumped per year. Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 3,400.

Gross earnings	$6,023 21	
From sale of water		
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income	$6,023 21	
Less operating expenses	1,752 45	
Surplus for year	$4,270 76	

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses	$406 59	
Insurance		
Legal expenses and damages		
Other expenses		
Wages		
Supplies—Fuel		
Pumping station supplies		
Filtration supplies	$1,345 86	$1,752 45
Other supplies		
For repairs and renewals		
Interest on bonds or loans		
Total cost of production	$1,752 45	

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		
Cost of real estate and buildings		
Other assets		
Total assets		$96,983 32
Debentures or bonds current		
Bank overdraft		
Municipal overdraft		
Total liabilities		

WATER WORKS, MUNICIPALITY OF BRANTFORD.

Plant installed, 1888-1889.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 961,188,483.
Total daily capacity of pumps, 10,000,000.
Average daily consumption, 2,634,000.
Cost of production for 1,000 gallons, .03.76.
Population of municipality, 23,000.

Gross earnings:		
From sale of water		$56,085 92
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources	1,002 64	
Total income		$57,088 56
Less operating expenses	36,170 05	
Surplus for year		$20,918 51
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$6,537 28	

WATER WORKS, MUNICIPALITY OF BRAMPTON.—(*Continued.*)

Office supplies and expenses	254 50	
Insurance	175 00	
Legal expenses and damages	.....	
Other expenses	256 60	
Wages	.....	
		$7,223 38
Supplies—Fuel	$5,520 24	
Pumping station supplies	312 00	
Filtration supplies	125 00	$5,957 24
Other supplies	.....	
For repairs and renewals	.....	4,623 24
Interest on bonds or loans	.....	18,366 35
Total cost of production		$36,170 05

Capital Expenditure.

Reservoirs and wells	$34,045 00
Cost of mains	$223,362 55
Cost of conduits	17,560 00
Cost of hydrants, $18,013.48; meters, $12,567.65	30,581 13
Cost of real estate and buildings	58,592 00
Pumping equipment	55,650 00
Other assets	.....
Connections, service stand, pipes, etc.	58,910 88
Total assets	$508,701 56
Debentures or bonds current	$470,733 09
Bank reserve	25,000 00
Municipal overdraft, earnings	12,904 85
Other debts	63 62
Total liabilities	$508,701 56
Sinking fund	152,063 50
Net debt	$356,638 06

WATER WORKS, MUNICIPALITY OF PRIDGBURG.

Plant installed, 1903.
Gravity or pumping system. Pumping.
Number of gallons pumped per year. Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 1,674.

Gross earnings:		
From sale of water	$2,000 00	
By meter	.....	
By contract	1,500 00	
From sale of meters	.....	
From permits tapping mains		
From other sources	.....	
Total income		$3,500 00
Less operating expenses		$5,568 84
Deficiency for year		$2,068 84

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,250 00	
Office supplies and expenses	150 00	
Insurance	10 00	
Legal expenses and damages	.....	
Other expenses	.....	
Wages	234 42	
		$1,644 42
Supplies—Fuel	.....	
Pumping station supplies		$664 90
Filtration supplies		100 32
Filtration supplies	.....	
Other supplies		46 00
For repairs and renewals		800 00
Interest on bonds or loans		2,313 20
Total cost of production		$5,568 84

Capital Expenditure.

Reservoirs	.....	.....
Cost of pumping equipment	$2,654 00	
Cost of service pipes and mains	14,222 26	
Cost of hydrants	1,427 13	
Cost of real estate and buildings and stand pipe	10,574 52	
Other assets	4,000 00	
		$32,877 91
Further assets		6,154 46
Total		$39,032 37
Debentures or bonds current		$49,039 84
Bank overdraft		.....
Municipal overdraft		.....
Total liabilities		$49,039 84

Water Works, Municipality of Brockville.

Plant installed, 1882.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 1,004,176,323.
Total daily capacity of pumps, 5,500,000 gals.
Average daily consumption, 2,750,000 gals.
Cost of production for 1,000 gallons, .03.2.
Population of municipality, 9,500.

Gross earnings:		
From sale of water		
By meter		
By contract		$30,853 94
From sale of meters		
From permits tapping mains		
From other sources		3,745 74
Total income		$34,599 68
Less operating expenses		$32,192 76
Surplus for year		$2,406 92

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,550 16	
Office supplies and and expenses	552 59	
Insurance	50 00	
Legal expenses and damages	66 61	
Other expenses	878 41	
Wages	3,330 00	
		$6,427 77
Supplies—Fuel	$4,383 86	
Pumping station supplies	621 34	
		$5,005 20
Sinking fund, appropriation		$8,564 69
Other supplies		
Depreciation		2,000 00
Repairs		898 08
Interest on bonds or loans		9,297 02
Total cost of production		$32,192 76

Capital Expenditure.

Original investment	$148,370 87
Reservoirs: Wells, $2,927.48; Intake, $3,620.24	6,547 72
Cost of mains	42,106 01
Cost of service pipes	72,492 34
Cost of hydrants ($10,836.45, $21,592 13)	32,428 58
Cost of real estate and buildings	
Pumping equipment $22,001 54	
Other assets 1,695 82	
	$23,697 36
Total assets	$265,642 88
Debentures or bonds current	$143,312 97
Bank overdraft	
Municipal overdraft	
Sinking fund	77,252 35
Total liabilities (net)	$66,060 62

Water Works, Municipality of Collingwood.

Plant installed, 1889.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 244,112,000 gals.
Total daily capacity of pumps, 2,500 gals.
Average daily consumption, 668,000 gals.
Cost of production for 1,000 gallons, .051
Population of municipality, 7,200.

Gross earnings:		
From sale of water		
By meter		
By contract		$13,928 15
From sale of meters		
From permits tapping mains		
From other sources	$500 00	
Total income		$14,428 15
Less operating expenses		12,556 48
Surplus for year		$1,871 67

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$900 00	
Office supplies and expenses	327 19	
Insurance	140 37	
Legal expenses and damages		
Other expenses		
Wages	1,327 93	
		$2,695 49
Supplies—Fuel	$3,310 18	
Pumping station supplies	90 18	$3,400 36
Filtration supplies		
Other supplies	698 72	
For repairs and renewals	$5,761 91	6,460 63
Interest on bonds or loans		
Total cost of production		$12,556 48

WATER WORKS, MUNICIPALITY OF COLLINGWOOD.—(*Continued.*)

Capital Expenditure.

Reservoirs		
Cost of mains	$48,177 21	
Cost of service pipes, conduits and well	5,019 95	
Cost of hydrants and meters.	12,985 38	
Cost of real estate and buildings	1,891 76	
Other assets, pumping equipment, etc.		6,422 36
Total assets		$74,496 66
Debentures or bonds current.		$43,891 94
Bank overdraft		
Municipal overdraft		
Total liabilities		$43,891 94

WATER WORKS, MUNICIPALITY OF CORNWALL.

Plant installed, 1887.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 515,000,000.
Total daily capacity of pumps, 2,000,000.
Average daily consumption, 1,411,000 gals.
Cost of production for 1,000 gallons, .0107.
Population of municipality, 6,426.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants	$139,746 58	
Cost of real estate and buildings		
Other assets		
Total assets	$139,746 58	
Debentures or bonds current	$101,855 21	
Bank overdraft		
Municipal overdraft		
Total liabilities	$101,855 21	

Gross earnings:		
From sale of water	$15,061 94	
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$15,061 94
Less operating expenses		8,663 93
Surplus for year		$6,398 01

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$2,315 67	
Office supplies and expenses	63 20	
Insurance		
Legal expenses and damages		
Other expenses	188 80	
Wages	630 43	
		$3,198 10
Supplies—Fuel	$420 38	
Pumping station supplies	80 28	
Filtration supplies		
Other supplies	1,145 74	$1,646 40
For repairs and renewals		
Interest on bonds or loans		3,819 43
Total cost of production		$8,663 93

WATER WORKS, MUNICIPALITY OF CREEMORE.

Plant installed, 1905.
Gravity or pumping system. Gravity.
Number of gallons pumped per year. Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 650.

Gross earnings	$600 00	
From sale of water		
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$1,276 70
Less operating expenses		
Deficiency for year		$676 70

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance		

WATER WORKS, MUNICIPALITY OF CREEMORE.—(*Continued.*)

Legal expenses and damages		
Other expenses		
Wages	60 00	
Supplies—Fuel		
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals		
Interest on bonds or loans (4%, $30,417.77)	$1,216 70	
Total cost of production	$1,276 70	

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants, Cost of real estate and buildings, Other assets		$22,500 00
Total assets		
Debentures or bonds current	$30,417	
Bank overdraft		
Municipal overdraft		
Total liabilities		$30,417 00

WATER WORKS, MUNICIPALITY OF DESERONTO.

Plant installed, 1906.
Gravity or pumping system. Pumping.
Number of gallons pumped per year. No record.
Total daily capacity of pumps, 3,000,000 gals.
Average daily consumption. No record.
Cost of production for 1,000 gallons.
Population of municipality, 1,998.

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants, Cost of real estate and buildings, Other assets		$38,000 00
Total assets		
Debentures or bonds current	$23,590 00	
Bank overdraft		
Municipal overdraft		
Total liabilities		$23,590 00

Gross earnings:

From sale of water		
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$1,308 39
Less operating expenses		7,338 53
Deficiency for year		$6,030 14

Operating expenses:

Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance	$50 00	
Legal expenses and damages		
Other expenses		
Wages	$1,404 00	
Supplies—Fuel	$2,533 40	
Pumping station supplies	210 36	
Filtration supplies.		
Other supplies	125 70	$4,323 46
For repairs and renewals		
Interest on bonds or loans		3,015 07
Total cost of production		$7,338 53

WATER WORKS, MUNICIPALITY OF DUNDAS.

Plant installed, 1884.
Gravity or pumping system. Gravity.
Number of gallons pumped per year, 11,790,477.
Total daily capacity of pumps. Gravity.
Average daily consumption, 32,000 gals.
Cost of production for 1,000 gallons, 28.8.
Population of municipality, 4,141.

Gross earnings:

From sale of water		
By meter	$1,541 60	
By contract	1,375 80	
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$2,917 40
Less operating expenses		3,402 82
Deficiency for year		$485 42

Operating expenses:

Salaries of officers, superintendents, clerks, etc.		$316 00

WATER WORKS, MUNICIPALITY OF DUNDAS.—(*Continued.*)

Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses		
Wages		130 65
Supplies—Fuel	$46 30	
Pumping station supplies	459 80	
Filtration supplies	38 00	
Other supplies	170 91	
		$715 01
For repairs and renewals	35 30	
Interest on bonds or loans	2,205 86	
		$2,241 16
Total cost of production		$3,402 82

Capital Expenditure.

Reservoirs	$5,300 00
Cost of mains	42,101 50
Cost of service pipes	711 38
Cost of hydrants	2,262 40
Cost of real estate and buildings	8,355 67
Other assets	6,743 67
Total assets	$65,474 62
Debentures or bonds current.	$45,571 36
Bank overdraft	
Municipal overdraft	
Total liabilities	$45,571 36

WATER WORKS, MUNICIPALITY OF EXETER.

Capital Expenditure.

Reservoirs	
Cost of mains	
Cost of service pipes	
Cost of hydrants	$21,400 80
Cost of real estate and buildings	
Other assets	
Total assets	

Debentures or bonds current.	$20,636 02
Bank overdraft	
Municipal overdraft	
Total liabilities	

The system is only used for purposes of fire protection at present, and there is no revenue derived from it.

WATER WORKS, MUNICIPALITY OF ESSEX.

Plant installed, 1891.
Gravity or pumping system. Pumping.
Number of gallons pumped per year. 27,000,000.
Total daily capacity of pumps, 5,184,000 gals.
Average daily consumption, 74,000 gals.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 1,318.

Gross earnings:		
From sale of water		
By meter		
By contract		
From sale of meters		$2,703 06
From permits tappings mains		
From other sources		
Total income		
Less operating expenses		$4,086 39
Surplus for year		$1,383 33
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses		$695 00
Wages		145 54
		$840 54
Supplies—Fuel		
Pumpstation supplies		1,069 48
Filtration supplies		54 27
Other supplies		1,174 72
For repairs and renewals		
Interest on bonds or loans		947 38
Total cost of production		$4,086 39

Capital Expenditure.

Reservoirs	
Cost of mains	
Cost of service pipes	
Cost of hydrants	$33,000 00
Cost of real estate and buildings	
Other assets	
Total assets	
Debentures or bonds current.	$17,667 59
Bank overdraft	
Municipal overdraft	
Total liabilities	$17,667 59

WATER WORKS, MUNICIPALITY OF FORT FRANCES.

Plant installed, 1907-1908.
Gravity or pumping system. Pumping.
Number of gallons pumped per year 15,500,000 gals.
Total daily capacity of pumps, 1,440,000 gals.
Average daily consumption, 42,500 gals.
Cost of production for 1,000 gallons. .32.7.
Population of municipality, 1,700.

Gross earnings:		
From sale of water	$3,267 54	
By meter		
By contract		
From sale of meters		
From permits tapping mains	1,230 00	
From other sources		
Total income		$4,497 54
Less operating expenses		5,074 45
Deficiency for year		$576 91

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,020 00	
Office supplies and expenses	15 37	$1,035 37
Insurance		
Legal expenses and damages		
Other expenses		
Wages		60 00
Supplies—Fuel		
Pumping station supplies, gasolene, etc.		$735 00
Filtration supplies		3 00
Other supplies		3,241 18
For repairs and renewals		
Interest on bonds or loans		
Total cost of production		$5,074 55

Capital Expenditure.

Reservoirs	$8,576 13
Cost of mains	44,153 83
Cost of service pipes	5,584 55
Cost of hydrants	3,556 90
Cost of real estate and buildings	8,234 21
Other assets	5,332 81
Total assets	$75,438 43

Debentures or bonds current.	$64,000 00
Bank overdraft	
Municipal overdraft	
Total liabilities	$64,000 00

WATER WORKS, MUNICIPALITY OF FORT WILLIAM.

Plant installed, 1898.
Gravity or pumping system. Gravity.
Number of gallons pumped per year 775,000,000.
Total daily capacity of pumps. None.
Average daily consumption, 2,125,000 gals.
Cost of production for 1,000 gallons. .08.5.
Population of municipality, 18,000.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		
Cost of real estate and buildings	$801,827 03	
Other assets		
Balance at bank		
Outstanding accounts		
Stock, etc.		
	54,865 06	
Loss on operation to date	$38,506 50	
Total assets		$897,198 59
Debentures or bonds current	$802,930 70	
Bank overdraft		
Municipal overdraft		
Total liabilities		$802,930 70

Gross earnings:		
From sale of water:		
Commercial service	$38,845 36	
Municipal service	16,615 00	
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$55,460 36
Less operating expenses		65,522 98
Surplus or deficiency for year		$10,062 62

Operating expenses	$1,498 47	
Salaries of officers, superintendents, clerks, etc.	254 80	
Office supplies and expenses		
Installation	5,004 51	
Legal expenses and damages	12 04	
Other expenses	3,644 46	
Wages, hydrants	2,645 32	
		$13,059 60

WATER WORKS, MUNICIPALITY OF FORT WILLIAM.—(*Continued.*)

Supplies—Fuel		
Inspection, etc. ...	$645 80	
Filtration supplies		
Other supplies		
For repairs and renewals	8,551 09	$9,196 89
Interest on bonds or loans		43,266 49
Total cost of production .		$65,522 98

WATER WORKS, MUNICIPALITY OF GALT.

Plant installed, 1891.
Gravity or pumping system. Pumping to stand pipe.
Number of gallons pumped per year. 324,403,778.
Total daily capacity of pumps, 2,250,000 gals.
Average daily consumption, 889,000.
Cost of production for 1,000 gallons. .0667.
Population of municipality, 9,718.

Capital Expenditure.

Gross earnings: From sale of water ..... By meter ..... By contract		$18,933 13
Hydrants	11,217 81	
From sale of meters.....	.....	
From other sources	.....	
From permits tapping mains	.....	
Total income		30,150 94
Less operating expenses		$21,433 13
Surplus for year		$8,717 81
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$2,232 53	
Office supplies and expenses	37 70	
Insurance	.....	
Legal expenses and damages ..	.....	
Other expenses ..	36 54	
Wages	1,238 72	
		3,545 49
Supplies:		
Fuel		3,236 47
Pumping station supplies...		117 40
Filtration supplies		.....
Other supplies		.....
For repairs and renewals		2,443 77
Interest on bonds or loans		12,090 00
Total cost of production..		$21,433 13

Capital Expenditure.

Reservoirs ..... Cost of mains..... Cost of service pipes ..... Cost of hydrants ..... Cost of real estate and buildings ..... Other assets	$211,967 83
Total assets	211,967 83
Debentures or bonds current.	$186,853 43
Bank overdraft	.....
Municipal overdraft	.....
Total liabilities	186,853 43
Sinking fund	78,829 02
Net debt	$108,024 41

WATER WORKS, MUNICIPALITY OF GEORGETOWN.

Plant installed, 1891.
Gravity or pumping system. Gravity.
Number of gallons pumped per year. No data.
Total daily capacity of pumps. No data.
Average daily consumption. No data.
Cost of production for 1,000 gallons. No data.
Population of municipality, 1,650.

Gross earnings: From sale of water ..... By meter ..... By contract		$3,046 02
From sale of meters	.....	
From permits tapping mains	.....	
From other sources	.....	
Total income		$3,046 02
Less operating expenses		1,815 00
Surplus or deficiency for year		$1,231 02
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$100 00	
Office supplies and expenses	.....	
Insurance	.....	
Legal expenses and damages ..	.....	
Other expenses ..	.....	
Wages	25 00	
		125 00
Supplies:		
Fuel	.....	
Pumping station supplies	.....	
Filtration supplies		
Other supplies ...	.....	
For repairs and renewals	$25 00	

WATER WORKS, MUNICIPALITY OF GEORGETOWN.—(*Continued.*)

Interest on bonds or loans	1,665 00	
		1,690 00
Total cost of production		$1,815 00

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants	$42,770 00

Cost of real estate and buildings	930 00
Other assets	
Total assets	$43,700 00
Debentures or bonds current	31,000 00
Bank overdraft	
Municipal overdraft	
Total liabilities	$31,000 00

WATER WORKS, MUNICIPALITY OF GUELPH.

Plant installed, 1879-1880.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, 436,274,000 gals.
Total daily capacity of pumps, 6,500,000 gals.
Average daily consumption, 1,195,280 gals.
Cost of production for 1,000 gallons. .0508.
Population of municipality, 15,000.

Gross earnings:		
From sale of water		
By meter	$3,558 36	
By contract	24,915 77	
From sale of meters		
From permits tapping mains		
From other sources	1,094 84	
Total income		$29,568 97
Less operating expenses		22,187 62
Surplus for year		$7,381 35

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,287 00	
Office supplies and expenses	200 10	
Insurance	54 12	
Legal expenses and damages	24 50	
Other expenses	501 59	
Wages	1,976 76	
		$4,044 07
Supplies—Fuel		$3,435 64
Pumping station supplies		334 43
Filtration supplies		
Other supplies		
For repairs and renewals		908 86
Interest on bonds or loans		13,464 52
Total cost of production		$22,187 62

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants, Cost of real estate and buildings, Other assets	$331,358 39
Total assets	$331,358 39
Debentures or bonds current	$167,534 00
Consolidated debt	55,200 00
Municipal overdraft	
Total liabilities	$222,734 00

WATER WORKS, MUNICIPALITY OF GRAVENHURST.

Plant installed, 1909.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, 18,250,000 gallons.
Total daily capacity of pumps, 1,584,000 gallons.
Average daily consumption, 50,000 gallons.
Cost of production for 1,000 gallons, .17.
Population of municipality, 2,000.

Gross earnings:		
From sale of water, By meter, By contract		$1,389 77
From sale of meters		
From permits tapping mains		
From other sources		
Total income		1,389 77
Less operating expenses		3,085 08
Deficiency for year		$1,695 31

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$210 00	
Office supplies and expenses	50 00	
Insurance	10 00	
Legal expenses and damages		

WATER WORKS, MUNICIPALITY OF GRAVENHURST.—(*Continued.*)

Other expenses		
Wages	490 08	
		760 08
Supplies:		
Electrical energy		325 00
Fuel		780 00
Pumping station supplies...		20 00
Filtration supplies		.....
Other supplies		.....
For repairs and renewals		200 00
Interest on bonds or loans		1,000 00
Total cost of production..		$3,085 08

Capital Expenditure.

Reservoirs and pumps	$2,340 00
Cost of mains	13,282 92
Cost of service pipes	1,548 38
Cost of hydrants	1,120 00
Cost of real estate, buildings, pump house	1,250 63
Other assets	754 58
Total assets	$20,296 51
Debentures or bonds current..	$20,000 00
Bank overdraft	.....
Municipal overdraft	
Canada Foundry Co.	422 45
Total liabilities	20,422 45
Sinking fund	364 90
Net liabilities	$20,057 55

WATER WORKS, MUNICIPALITY OF HAMILTON.

Plant installed, 1857.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 2,686,214,140 gallons.
Total daily capacity of pumps, 13,000,000 gallons.
Average daily consumption, 7,359,000 gallons.
Cost of production for 1,000 gallons, .0481.
Population of municipality, 75,900.

Gross earnings:		
From sale of water		
By meter		
By contract		$259,850 43
From sale of meters.....		
From permits tapping mains		
From other sources		
Total income		$259,850 43
Less operating expenses		129,218 09
Surplus for year		$130,632 34
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$8,146 27	
Office supplies and expenses	852 30	
Insurance	352 23	
Legal expenses and damages		
Other expenses ..	130 55	
Wages	19,901 03	
		293,82 38
Supplies:		
Fuel, power and light	17,689 54	
Pumping station supplies	1,487 45	
Filtration supplies		
Other supplies ...	2,520 50	
		21,697 49
For repairs and renewals.....		1,753 20
Interest on bonds or loans....		76,385 02
Total cost of production..		$129,218 09

Capital Expenditure.

Cost of land	$72,096 10
Reservoirs and tanks	100,000 00
Cost of wells	4,032 00
Cost of mains	616,861 75
Cost of conduits	18,265 00
Cost of service pipes	
Cost of hydrants and valves..	151,380 00
Cost of pumping equipment...	211,188 17
Cost of real estate and buildings	75,000 00
Cost of filters and filtration beds	50,000 00
Other assets	244,587 34
Total assets	$2,573,410 36
Debentures or bonds current..	$1,457,423 25
Bank overdraft	
Municipal overdraft	
Total liabilities	$1,457,423 25
Sinking fund	176,934 00
Net debt	$1,280,489 25

WATER WORKS, MUNICIPALITY OF HANOVER.

Plant installed, 1901.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year. Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 2,640.

WATER WORKS, MUNICIPALITY OF HANOVER.—(*Continued.*)

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$32,936 53
Cost of real estate and buildings		
Other assets		
Total assets		$32,936 53
Debentures or bonds current		$31,911 53
Bank overdraft		
Municipal overdraft		
Total liabilities		$31,911 53

Gross earnings:		
From sale of water	417 00	
By meter		
By contract		
From sale of meters		
From permits tapping mains	1,239 32	
From other sources	29 17	
Total income		$1,685 49
Less operating expenses		3,080 39
Surplus for year		$1,394 90

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$403 25	
Office supplies and expenses	41 50	
Insurance	43 00	
Legal expenses and damages		
Other expenses	821 17	
Wages	274 94	
		$1,583 86
Supplies—Fuel	$9 86	
Pumping station supplies	51 75	$61 61
Filtration supplies		
Other supplies		301 80
For repairs and renewals		
Interest on bonds or loans		1,133 12
Total cost of production		$3,080 39

WATER WORKS, MUNICIPALITY OF HAWKESBURY.

Plant installed, 1904.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 97,700,000 gals.
Total daily capacity of pumps, 1,000,000 gals.
Average daily consumption, 267,000 gals.
Cost of production for 1,000 gallons. .054.
Population of municipality, 4,500.

Gross earnings:		
From sale of water		
By meter		
By contract		$5,391 80
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$5,391 80
Less operating expenses		5,264 69
Surplus for year		$127 11

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,740 00	
Office supplies and expenses		
Insurance	85 00	
Legal expenses and damages		
Other expenses		
Wages	170 55	
		$1,995 55
Supplies—Fuel		$567 00
Pumping station supplies		338 74
Filtration supplies		
Other supplies		975 00
For repairs and renewals		
Interest on bonds or loans		1,388 40
Total cost of production		$5,264 69

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$120,000 00
Cost of real estate and buildings		
Other assets		
Total assets		$120,000 00
Debentures or bonds current		$62,191 05
Bank overdraft		
Municipal overdraft		
Total liabilities		$62,191 05

WATER WORKS, MUNICIPALITY OF IROQUOIS.

Plant installed, 1886; acquired by municipality, 1898.
Gravity or pumping system. Pumping.
Number of gallons pumped per year. No data.

WATER WORKS, MUNICIPALITY OF IROQUOIS.—(*Continued.*)

Total daily capacity of pumps. No data.
Average daily consumption. No data.
Cost of production for 1,000 gallons, No data.
Population of municipality, 900.

Gross earnings:		
From sale of water		
By meter		
By contract		$1,245 47
From sale of meters		
From permits tapping mains		
Total income		$1,245 47
From other sources		
Less operating expenses		$877 24
Surplus		$368 23
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$469 47	
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses	308 30	
Wages		$777 77
Supplies—Fuel	$14 08	
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals	$85 39	$99 47
Interest on bonds or loans		
Total cost of production (exclusive of interest on debentures)		$877 24

Capital Expenditure.

Reservoirs	
Conduits	$5,000 00
Cost of service pipes	
Cost of pumping equipment, including mains	22,824 14
Cost of real estate and buildings	9,041 03
Other assets	3,234 70
Total assets	$40,099 87
Debentures or bonds current	*$64,354 13
Bank overdraft	
Municipal overdraft	
Total liabilities	$64,354 13

*Issued for all purposes, including Water Works.

WATER WORKS, MUNICIPALITY OF KENORA.

Plant installed, 1898.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps, 2,250,000 gals.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 7,000.

Gross earnings:		
From sale of water		
By meter		
By contract		$16,589 22
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$16,589 22
Less operating expenses		15,191 27
Surplus for year		$1,397 95
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,380 00	
Office supplies and expenses		
Electric power	1,600 00	
Legal expenses and damages		
Other expenses		
Wages	1,514 96	
	2,464 96	
Supplies—Fuel	$913 93	
Pumping station supplies		
Filtration supplies		
Other supplies	838 92	
For repairs and renewals		$8,712 77
Interest on bonds or loans		6,478 50
Total cost of production		$15,191 27

Capital Expenditure.

Reservoirs	
Cost of mains	
Cost of service pipes	
Cost of hydrants	$207,128 23
Cost of real estate and buildings	
Other assets	
Total assets	$207,128 23

WATER WORKS, MUNICIPALITY OF KENORA.—(*Continued.*)

Debentures or bonds current	$168,266 99
Bank overdraft	
Municipal overdraft	
Total liabilities	$168,266 99

WATER WORKS, MUNICIPALITY OF KINCARDINE.

Plant installed, 1889.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 100,000,000.
Total daily capacity of pumps, 1,152,000 gals.
Average daily consumption, 274,000 gals.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 2,631.

Gross earnings:		
From sale of water		
By meter	$284 15	
By contract	2,774 51	
From sale of meters		
From permits tapping mains		
Hydrants	2,470 00	
From other sources	190 80	
Total income		$5,719 46
Less operating expenses		4,143 23
Surplus for year		$1,576 23

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$795 08	
Office supplies and expenses		
Insurance	46 20	
Legal expenses and damages		
Other expenses	56 90	
Wages	255 39	
		$1,153 57
Supplies—Fuel	$1,010 75	
Pumping station supplies	81 80	
Filtration supplies		
Other supplies	369 27	$1,461 82
For repairs and renewals	264 82	
Interest on bonds or loans	1,263 02	1,527 84
Total cost of production		$4,143 23

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants, Cost of real estate and buildings, Other assets	$47,325 82
Total assets	$47,325 82
Debentures or bonds current	$26,853 83
Bank overdraft	
Municipal overdraft	805 92
Other debts	194 47
Total liabilities	$27,854 22

WATER WORKS, MUNICIPALITY OF KINGSVILLE.

Plant installed, 1894.
Pumping plant purchased, 1903.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, 18,000,000 gals. (estimated).
Total daily capacity of pumps.
Average daily consumption, 1,007,000.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 1,680.

Gross earnings:		
From sale of water		
By meter	$162 22	
By contract	1,808 00	
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$1,970 22
Less operating expenses		2,897 20
Deficiency for year		$926 98

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance	88 00	
Legal expenses and damages		
Other expenses		
Wages	600 00	
		$688 00
Supplies—Fuel	$789 35	
Pumping station supplies	121 75	$911 10
Filtration supplies		
Other supplies	346 58	
For repairs and renewals	951 52	$1,298 10
Interest on bonds or loans		
Total cost of production		$2,897 20

WATER WORKS, MUNICIPALITY OF KINGSVILLE.—(*Continued.*)

Capital Expenditure.

Stand pipe	$19,600 00
Cost of pumping equipment	10,000 00
Cost of service pipes	
Cost of hydrants	
Cost of real estate and buildings	
Other assets	2,400 00
Total assets	$32,000 00
Debentures or bonds current	$18,439 57
Bank overdraft	
Municipal overdraft	
Total liabilities	$18,439 57

WATER WORKS, MUNICIPALITY OF KINGSTON, ONT.

Plant installed, 1850.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 864,003,803.
Total daily capacity of pumps, 7,000,000 gals.
Average daily consumption, 2,360,000 gals.
Cost of production for 1,000 gallons. .0307.
Population of municipality, 19,400.

Supplies—Fuel	$4,162 87	
Pumping station supplies	453 92	
Filtration supplies.		
Other supplies	461 48	
		$5,078 27
For repairs and renewals		4.562 23
Interest on bonds or loans		9,218 75
Total cost of production		$26,169 30

Gross earnings:

From sale of water.		
By meter	$4,285 56	
By contract	$35,570 69	
From sale of meters		
From permits tapping mains		
From other sources	707 25	
Total income		$40,563 50
Less operating expenses		26,169 30
Surplus or deficiency for year		$14,394 20

Operating expenses:

Salaries of officers, superintendents, clerks, etc.	$4,825 00	
Office supplies and expenses	461 38	
Insurance	25 00	
Legal expenses and damages		
Other expenses	391 81	
Wages	1,606 86	
		$7,310 05

Capital Expenditure.

Reservoirs	$13,000 00	
Cost of mains, Cost of service pipes		$230,085 08
Cost of hydrants, engines and boilers	17,520 15	
Cost of real estate and buildings	26,768 83	
Other assets: Suction pipe, $12,976.08; meters, $1,697.23	14,673 31	
Other assets	24,029 68	
Total assets		$326,077 05
Debentures or bonds current		$199,900 00
Bank overdraft		6,272 67
Municipal overdraft		
Total liabilities		$206,172 67

WATER WORKS, MUNICIPALITY OF LINDSAY.

Plant installed, 1902.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 7,500.

Gross earnings:

From sale of water, general, G.T.R.	$5,813 98	
By meter	1,698 25	
By contract	4,048 74	
From hydrant rental	3,537 50	
From permits tapping mains		
From other sources	786 11	
Total income		$15,884 58
Less operating expenses		$9,828 09
Surplus for year		$6,056 49

Operating expenses:

Salaries of officers, superintendents, clerks, etc.	$2,682 00	
Office supplies and expenses	259 49	
Insurance		

WATER WORKS, MUNICIPALITY OF LINDSAY.—(*Continued.*)

Legal expenses and damages	17 30	
Other expenses	280 59	
Wages		$3,239 38
Supplies—Fuel		$2,048 47
Pumping station supplies		
Filtration supplies.		
Other supplies		
For repairs and renewals		1,012 16
Interest on bonds or loans		3,528 08
Total cost of production		$9,828 09

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants, Cost of real estate and buildings		$116,440 07
Other assets		5,676 59
Total assets		$122 116 66
Debentures or bonds current		$91,662 54
Accrued interest		1,340 25
Other debts		3.079 05
Total liabilities		$96,081 84

WATER WORKS, MUNICIPALITY OF LISTOWEL.

Plant installed, 1904.
Gravity or pumping system. Pumping.
Number of gallons pumped per year. Not given.
Total daily capacity of pumps, 1,056,000 gals.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 2,600.

Gross earnings:		
From sale of water, By meter		$4,979 89
By contract		825 00
From sale of meters, From permits tapping mains, From other sources		
Total income		5,804 89
Less operating expenses		4,636 49
Surplus or deficiency for year		$1,168 40

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$630 00	
Office supplies and expenses	16 00	
Insurance		
Legal expenses and damages	130 10	
Other expenses		
Wages		$776 10
Supplies—Fuel	$900 00	
Pumping station supplies	26 51	$926 51
Filtration supplies.		
Other supplies		657 50
For repairs and renewals		114 42
Interest on bonds or loans		2,161 96
Total cost of production		$4,636 49

Capital Expenditure.

Reservoirs and stand pipes	$6,500 00	
Cost of mains	14,942 00	
Cost of service pipes	1,079 31	
Cost of hydrants	1,325 00	
Cost of real estate and buildings	5,500 00	
Other assets (wells, pumps, boilers)	17,233 00	
Total assets		$46,579 31
Debentures or bonds current		$32,274 78
Bank overdraft		
Municipal overdraft		2,389 75
Total liabilities		$34,664 53

WATER WORKS, MUNICIPALITY OF LONDON.

Plant installed, 1878.
Gravity or pumping system. Combination, pumping and gravity.
Number of gallons pumped per year, 1,550,000,000.
Total daily capacity of pumps, 5,000,000.
Average daily consumption, 4,250,000 gals.
Cost of production for 1,000 gallons, .038.†
Population of municipality, 47,000.

†Not inclusive of interest on debt due City.

Gross earnings:		
From sale of water, By meter, By contract		$121,382 98
From sale of meters, interest	$329 19	
From permits tap-		

WATER WORKS, MUNICIPALITY OF LONDON.—(*Continued.*)

ping mains, rentals	671 00	
From other sources		
		$1,000 19
Total income		$122,383 17
Less operating expenses		52,377 99
Surplus for year		70,005 18

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$6,678 53	
Other supplies and expenses	733 48	
Insurance	416 23	
Legal expenses and damages	123 30	
Other expenses	6,916 27	
Wages	19,194 05	
		$34,061 86
Supplies—Fuel		
Pumping station supplies	$12,282 51	
Filtration supplies.	4,659 56	
Other supplies	522 04	
For repairs and renewals	8,520 02	
Interest on bonds or loans		
		$18,316 13
Total cost of production		$52,377 99

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants	$932,028 80
Cost of real estate and buildings	91,058 02
Other assets	64,447 53
Total assets	$1,087,534 35

City of London capital account	$1,038,121 84
Bank overdraft	
Other debts	1,014 28
Municipal overdraft	48,398 23
Total liabilities	$1,087,534 35

WATER WORKS, MUNICIPALITY OF MERRITTON.

Plant installed, 1888-1889.
Gravity or pumping system. Pumping and gravity.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 1,560.

Gross earnings:		
From sale of water	1,859 52	
By meter	1,959 47	
By contract, hydrants	1,000 00	
From sale of meters		
From permits tapping mains		
From other sources	543 49	
Total income		$5,362 48
Less operating expenses		5,041 77
Surplus for year		$320 71

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$610 10	
Office supplies and expenses	14 00	
Insurance		
Legal expenses and damages		
Other expenses	97 00	
Wages	219 50	
		$940 60
		$940 60
Supplies—Fuel		
Pumping station supplies		
Filtration supplies.		
Other supplies		
For repairs and renewals	$101 17	
Interest on debentures and debentures paid	4,000 00	$4,101 17
Total cost of production		$5,041 77

Capital Expenditure.

Reservoirs, Cost of service pipes, Cost of hydrants, Cost of real estate and buildings, Other assets	$86,723 52
Total assets	$86,723 52

Debentures or bonds current	$24,704 09
Bank overdraft	
Municipal overdraft	
Total liabilities	$24,704 09

Water Works, Municipality of Milton.

Plant installed, 1887.
Gravity or pumping system. Gravity.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 1,700.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants	$30,000 00	
Cost of real estate and buildings		
Other assets		
Total assets		$30,000 00
Debentures or bonds current	$9,171 00	
Bank overdraft		
Municipal overdraft		
Total liabilities		$9,171 00

Gross earnings:		
From sale of water		$1,200 00
By meter		
By contract		
From hydrants		630 00
From tapping mains		
From other sources		
Total income		$1,830 00
Less operating expenses		925 49
Surplus for year		$904 51
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance		$430 00
Legal expenses and damages		
Other expenses		
Wages		
Supplies—Fuel		
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals		
Interest on bonds or loans		$495 49
Total cost of production		$925 49

Water Works, Municipality of Morrisburg.

Plant installed, 1887.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 1,700.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants	$25,000 00	
Cost of real estate and buildings		
Other assets		
Total assets		$25,000 00
Debentures or bonds current	$20,000 00	
Bank overdraft		
Municipal overdraft		
Total liabilities		$20,000 00

Gross earnings:		
From sale of water		
By meter	$3,231 41	
By contract		
From sale of meters		
From permits tapping mains		
From other sources		25 29
Total income		$3,256 70
Less operating expenses		2,887 14
Surplus for year		$369 56
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$225 00	
Office supplies and expenses	316 09	
Insurance		
Legal expenses and damages		
Other expenses	152 64	
Wages	331 57	
		$1,025 30
Supplies—Fuel		$250 54
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals		
Interest on bonds or loans		$1,611 30
Total cost of production		$2,887 14

Water Works, Municipality of Mount Forest.

Plant installed, 1898.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 44,000,000.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 2,300.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$34,500 00
Cost of real estate and buildings		
Other assets		
Total assets		$34,500 00
Debentures or bonds current		$26,400 00
Bank overdraft		
Municipal overdraft		
Total liabilities		$26,400 00

Gross earnings:		
From sale of water		$3,006 20
By meter		
By contract		
From sale of meters, hydrant rents		1,050 00
From permits tapping mains		
From other sources		
Total income		$4,056 20
Less operating expenses		7,055 34
Deficiency for year		$2,999 14

Operating expenses:		
Salaries of officers, superintendents, clerks, etc., 50%	$1,723 25	$861 63
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses		
Wages		
Supplies—Fuel, 50%	$2,187 50	$1,093 75
Pumping station supplies	2,723 46	1,361 73
Filtration supplies		
Other supplies	$3,378 46	$1,689 23
For repairs and renewals		$5,006 34
Interest on bonds or loans and debentures paid		2,049 00
Total cost of production		$7,055 34

Water Works, Municipality of Midland.

Plant installed, 1901-1902.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 4,225.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$93,445 48
Cost of real estate and buildings		
Other assets		
Total assets		$93,445 48
Debentures or bonds current		$66,929 71
Bank overdraft		
Municipal overdraft		
Total liabilities		$66,929 71

Gross earnings:		
From sale of water		$10,681 52
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
		$10,681 52
Less operating expenses		$8,062 36
Surplus for year		$2,619 16

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,510 20	
Office supplies and expenses	196 03	
Insurance	197 93	
Legal expenses and damages	8 00	
Other expenses		
Wages	66 00	
		$1,978 16
Supplies—Fuel	$2,674 07	
Pumping station supplies	253 75	
Filtration supplies		
Other supplies	245 90	$3,173 72
For repairs and renewals		64 65
Interest on bonds or loans		2,845 83
Total cost of production		$8,062 36

Water Works, Municipality of Newmarket.

Plant installed, 1897.
Gravity or pumping system. Pumping and gravity.
Number of gallons pumped per year, 69,350,000.
Total daily capacity of pumps, 2,880,000.
Average daily consumption, 190,000 gals.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 3,316.

Gross earnings:		
From sale of water.		
By meter		
By contract		$2,845 23
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$3,303 45
Less operating expenses		
Deficiency for year		458 22
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$50 00	
Office supplies and expenses	133 00	
Insurance	.....	
Legal expenses and damages	.....	
Other expenses	90 00	
Wages	700 00	
		$973 00
Supplies—Fuel		$800 00
Pumping station supplies ..		
Filtration supplies		
Other supplies		
For repairs and renewals		790 00
Interest on bonds or loans ...		740 45
Total cost of production..		$3,303 45

Capital Expenditure.

Reservoirs	$3,300 00	
Cost of mains	23,000 00	
Cost of service pipes..	.....	
Cost of hydrants ..	3,550 00	
Cost of real estate and buildings	5,584 85	
Other assets	18,475 00	
Total assets		$53,909 85
Debentures or bonds current..		$12,767 33
Bank overdraft		
Municipal overdraft		2,729 85
Total liabilities		$15,497 18

Water Works, Municipality of Niagara.

Plant installed, 1891.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 1,612.

Gross earnings:		
From sale of water		
By contract		$3,012 24
By meter		
From sale of meters.....		
From permits tapping mains	12 00	
From other sources		
Total income		$3,024 24
Less operating expenses		2,577 23
Surplus for year		$447 01
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$488 00	
Office supplies and expenses	.....	
Electricity	772 00	$1,260 00
Legal expenses and damages		
Other expenses	.....	
Wages		
Supplies—Fuel	$180 42	
Pumping station supplies	.....	
Filtration supplies..	.....	
Other supplies	210 99	$391 41
For repairs and renewals	116 55	
Interest on bonds or loans	809 27	925 82
Total cost of production..		$2,577 23

Capital Expenditure.

Reservoirs	.....	
Cost of mains	$1,630 46	
Cost of service pipes		
Cost of hydrants		
Cost of real estate and buildings	$36,000	$37,630 46
Other assets		
Total assets		$37,630 46
Debentures or bonds current..		$15,045 86
Bank overdraft		
Municipal overdraft		
Total liabilities		$15,045 86

Water Works, Municipality of Niagara Falls.

Plant installed, 1884.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 814,647,707.
Total daily capacity of pumps, 7,500,000.
Average daily consumption, 2,232,000 gals.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 10,036.

Gross earnings:		
From sale of water		
By meter	$764 66	
By contract	23,507 85	
From sale of meters		
From permits tapping mains		
From other sources	2,971 33	$27,243 84
Total income		$27,243 84
Less operating expenses		19,554 88
Surplus for year		$7,688 96

Operating expenses:		
Sundries		$440 00
Salaries of officers, superintendents, clerks, etc. ...	$4,250 00	
Office supplies and expenses	235 98	
Insurance	12 50	
Legal expenses and damages		
Other expenses		
Wages	430 61	$4,929 09
Supplies—Fuel	$9 61	
Pumping station supplies		
Filtration supplies.		
Other supplies	953 94	$963 55
For repairs and renewals ...		1,406 10
Interest on bonds or loans ...		4,737 75
Principal paid		7,077 89
Total expenses		$19,554 88

Capital Expenditure.

Reservoirs	
Cost of mains	
Cost of service pipes	
Cost of hydrants	$220,943 28
Cost of real estate and buildings	
Other assets	
Total assets	$220,943 28
Debentures or bonds current	$108,008 06
Bank overdraft	
Municipal overdraft	
Total liabilities	$108,008 06

Water Works, Municipality of North Bay.

Plant installed, 1891.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, No data.
Total daily capacity of pumps. No data.
Average daily consumption. No data.
Cost of production for 1,000 gallons. No data.
Population of municipality, 7,851.

Gross earnings:		
From sale of water		
By meter		$18,345 67
By contract		
From sale of meters.....		
From permits tapping mains		
From other sources		
Total income		$18,345 67
Less operating expenses		12,841 82
Surplus or deficiency for year		$5,503 85

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$400 00	
Office supplies and expenses	100 00	
Insurance	175 00	
Legal expenses and damages		
Other expenses		
Wages	3,166 13	$3,841 13
Supplies—Fuel		$3,833 32
Pumping station supplies		
Filtration supplies.		
Other supplies		
For repairs and renewals ...		1,352 43
Interest on bonds or loans...		3,814 94
Total cost of production.		$12,841 82

Capital Expenditure.

Reservoirs	
Cost of mains	
Cost of service pipes	$133,740 49
Cost of hydrants	
Cost of real estate and buildings	
Other assets	1,844 77
Total assets	$135,585 26
Debentures or bonds current.	$73,738 68
Bank overdraft	
Municipal overdraft	
Total liabilities	$73,738 68

Water Works, Municipality of Orangeville.

Plant installed, 1896.
Gravity or pumping system. Gravity.
Number of gallons pumped per year, No data.
Total daily capacity of pumps. No data.
Average daily consumption. No data.
Cost of production for 1,000 gallons, No data.
Population of municipality, 2,321.

Gross earnings:		
From sale of water		
By meter		
By contract		
From sale of meters	$3,251 32	
From permits tapping mains		
From other sources		
Total income	$3,251 32	
Less operating expenses	2,626 79	
Surplus for year	$624 53	
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$501 00	
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses		
Wages	663 51	$1,164 51
Supplies—Fuel		$65 69
Pumping station supplies		
Filtration supplies.		
Other supplies		
For repairs and renewals		
Interest on bonds or loans		$1,396 59
Total cost of production.		$2,626 79

Capital Expenditure.

Reservoirs	
Cost of mains	
Cost of service pipes	
Cost of hydrants	$52,194 56
Cost of real estate and buildings	
Other assets	
Total assets	$52,194 56
Debentures or bonds current.	$29,669 27
Bank overdraft	
Municipal overdraft	
Total liabilities	$29,669 27

Water Works, Municipality of Oshawa.

Plant installed, .
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 92,170,508 gals.
Total daily capacity of pumps, 2,880,000 gals.
Average daily consumption, 252,500 gals.
Cost of production for 1,000 gallons, .091.
Population of municipality, 6,318.

Gross earnings:		
From sale of water		
By meter	$6,731 08	
By contract	2,372 46	
From sale of meters		
From permits tapping mains		
From other sources	1,944 46	$11,048 00
Total income		$11,048 00
Less operating expenses		8,307 30
Surplus for year		$2,740 70
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$275 00	
Office supplies and expenses	69 73	
Insurance	62 00	
Legal expenses and damages	20 00	
Other expenses		
Wages	900 27	$1,327 00
Supplies—Fuel	$1,302 61	
Pumping station supplies	242 80	
Filtration supplies.	66 14	$1,611 55
Other supplies		330 99
For repairs and renewals		
Interest on bonds or loans		$5,037 76
Total cost of production		$8,307 30

Capital Expenditure.

Reservoirs, Intake pipe	$14,511 82	
Cost of mains	53,266 33	
Cost of force main.	17,421 00	
Cost of hydrants and meters	8,921 85	
Cost of real estate and buildings	11,667 00	
Other assets	21,677 76	
do	13,820 15	$141,285 91
Total assets		$141,285 91
Debentures or bonds current		$121,685 00
Bank overdraft		
Municipal overdraft		
Total liabilities		$121,685 00

Water Works, Municipality of Ottawa.

Plant installed, 1874.
Gravity or pumping system. Direct pressure pumping.
Number of gallons pumped per year, 5,704,771,200.
Total daily capacity of pumps, 3,100,000 gals.
Average daily consumption, 1,600,000 gals.
Cost of production for 1,000 gallons, .0377.
Population of municipality, 86,106.

Gross earnings:		
From sale of water ..... By meter ..... By contract		$216,291 30
From sale of meters.....		
From permits tapping ma		
From other sources ...		
Total income		$216,291 30
Less operating expenses		215,001 99
Surplus for year		$1,289 31
Operating expenses:		
Salaries of officers, superintendents, clerks, etc. ..	$17,593 25	
Office supplies and expenses	1,186 60	
Insurance	271 90	
Legal expenses and damages	466 00	
Other expenses	1,408 71	
Wages	10,539 96	$31,466 42
Supplies—Fuel		
Pumping station supplies ..		$775 02
Filtration supplies, extensions		2,323 99
Other supplies, report on purification		4,849 76
For repairs and renewals ...		66,853 48
Interest on bonds or loans ...		108,733 32
Total cost of production.		$215,001 99

Capital Expenditure

Reservoirs	
Cost of mains	$1,143,205 78
Cost of service pipes	299,674 20
Cost of hydrants	86,625 00
Cost of real estate and buildings	204,805 62
Other assets	804,571 29
Total assets	$2,538,881 89
Debentures or bonds current	$981,386 70
Bank overdraft	
Municipal overdraft	
Total liabilities	$981,386 70
Less sinking fund	268,965 84
Net debt	$712,420 86

Water Works, Municipality of Owen Sound.

Plant taken over, 1890.
Gravity or pumping system. Gravity.
Number of gallons produced, 23,600,000.
Total daily capacity of pumps. None.
Average daily consumption, 648,000.
Cost of production for 1,000 gallons, .071.
Population of municipality, 11,870.

Gross earnings:		
From sale of water ..... By meter ..... By contract		$16,844 20
From sale of meters, hydrant rentals		5,000 00
From permits tapping mains		
From other sources, interest		2,836 40
Total income		$24,680 60
Less operating expenses		16,910 32
Surplus for year		$7,770 28
Operating expenses:		
Salaries of officers, superintendents, clerks, etc. ...	$2,018 75	
Office supplies and expenses	119 40	
Insurance		
Legal expenses and damages		
Other expenses		
Wages	1,770 26	$3,908 41
Supplies—Fuel		
Pumping station supplies ..		
Filtration supplies		
Other supplies		
For repairs and renewals		1,036 85
Interest on bonds or loans ..		11,965 06
Total cost of production.		$16,910 32

Capital Expenditure.

Original purchase	$225,899 97
Reservoirs	21,132 69
Cost of mains	5,985 03
Cost of service pipes	1,127 00
Cost of hydrants	558 60
Springs	5,955 60
Cost of real estate and buildings	16,878 49
Other assets	
Total assets	$277,537 38

WATER WORKS, MUNICIPALITY OF OWEN SOUND.—*Continued.*

Debentures or bonds current	$255,052 44	Less Sinking Fund	55,075 12
Bank overdraft		Net debt	$199,977 32
Municipal overdraft			
Total liabilities	$255,052 44		

WATER WORKS, MUNICIPALITY OF PARIS.

Plant installed, 1882.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, 100,000,000.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 4,278

Gross earnings:		
From sale of water ..... By meter ..... By contract	$5,597 03	
From sale of meters		
From permits tapping mains		
From other sources, rent of hydrants	1,000 00	
Total income	$6,597 03	
Less operating expenses	6,400 57	
Surplus for year	$196 46	
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$104 00	
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses	1,500 00	
Wages	148 76	$1,752 76
Supplies—Fuel	$133 13	
Pumping station supplies		
Depreciation		$200 00
Other supplies	292 68	425 81
For repairs and renewals		
Interest on bonds or loans and debenture paid		4,022 00
Total cost of production..		$6,400 57

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		$84,967 00
Cost of hydrants		
Cost of real estate and buildings		
Other assets		
Total assets		$84,967 00
Debentures or bonds current.		$11,000 00
Bank overdraft		
Municipal overdraft		
Total liabilities		$11,000 00

WATER WORKS, MUNICIPALITY OF PENETANGUISHENE.

Plant installed, 1890-1891.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 91,000,000.
Total daily capacity of pumps. Not given.
Average daily consumption, 250,000 gals.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 3,550.

Gross earnings:		
From sale of water		
By meter	$3,277 99	
By contract	1,700 00	
From sale of meters		
From permits tapping mains		
From other sources		
Total income	$4,977 99	
Less operating expenses ...	4,575 31	
Surplus for year	$402 68	
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$483 81	
Office supplies and expenses		
Insurance	$25 00	$508 81
Legal expenses and damages		
Other expenses		
Wages, pumping contract		2,300 00
Supplies—Fuel		
Pumping station supplies ..		
Filtration supplies.		
Other supplies		
For repairs and renewals		$1,766 50
Interest on bonds or loans ..		
Total cost of production.		$4,575 31

WATER WORKS, MUNICIPALITY OF PENETANGUISHENE.—*Continued.*

Capital Expenditure.

Reservoirs	$2,500 00
Cost of mains	26,000 00
Cost of service pipes	4,600 00
Cost of hydrants	2,200 00
Cost of real estate and buildings	3,500 00
Other assets	11,700 00
Total assets	$50,500 00

Debentures or bonds current	$35,700 00
Bank overdraft	
Municipal overdraft	
Total liabilities	$35,700 00

WATER WORKS, MUNICIPALITY OF PETERBORO.

Plant installed, 1882.
Acquired by municipality, 1902.
Gravity or pumping system. Direct pumping.
Number of gallons pumped per year, 695,164,840.
Total daily capacity of pumps. Not given.
Average daily consumption, 1,900,000 gals.
Cost of production for 1,000 gallons. .04.22.
Population of municipality, 18,000.

Capital Expenditure.

Reservoirs, etc.	$146,078 19	
Cost of conduits	26,005 07	
Cost of service pipes and meters	43,822 42	
Cost of hydrants and mains	207,810 16	
Cost of real estate and buildings	26,005 07 13,331 56	
Other assets	40,851 25	
Total assets		$503,903 72
Debentures or bonds current	$452,000 00	
Bank overdraft	13,518 26	
Municipal overdraft		
Total liabilities		$465,518 26

Gross earnings:		
From sale of water By meter By contract		$39,389 49
From sale of meters		
From permits tapping mains		
From other sources		2,862 75
Total income		$42,252 24
Less operating expenses		30,720 11
Surplus for year		$11,532 13
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$5,380 02	
Office supplies and expenses	1,034 86	
Insurance		
Legal expenses and damages		
Other expenses	1,116 21	
Wages	3,513 60	$11,044 69
Supplies—Fuel		$1,315 77
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals		597 40
Interest on bonds or loans		$17,762 25
Total cost of production		$30,720 11

WATER WORKS, MUNICIPALITY OF PETROLEA.

Plant installed, 1896.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, 253,567,807 gals.
Total daily capacity of pumps, 4,800,000.
Average daily consumption, 694,750 gals.
Cost of production for 1,000 gallons, .059.
Population of municipality, 4,500.

Capital Expenditure.

Reservoirs and tanks	$8,500 00
Cost of mains	50,171 65
Cost of service pipes and conduits	101,000 00
Cost of hydrants, $5,500; wells, $500	6,000 00
Cost of real estate and buildings	6,200 00
Other assets	8,558 68
Pumping equipment	10,000 00
Total assets	$190,430 33
Debentures or bonds current	$110,592 01
Bank overdraft	
Municipal overdraft	
Total liabilities	$110,592 01

Gross earnings:
From sale of water

WATER WORKS, MUNICIPALITY OF PETROLEA.—*Continued.*

By meter	$1,793 87	
By contract	14,199 32	
From sale of meters		
From permits tapping mains		
From other sources	267 03	$16,260 22
Total income		$16,260 22
Less operating expenses	15,000 99	
Surplus for year		$1,259 23

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$600 00	
Office supplies and expenses	63 00	
Insurance	71 10	
Legal expenses and damages		
Other expenses	252 10	
Wages	1,210 38	$2,196 58
Supplies—Fuel		$2,576 29
Pumping station supplies		230 00
Filtration supplies		
Other supplies		51 34
For repairs and renewals		
Interest on bonds or loans		9,946 78
Total cost of production		$15,000 99

WATER WORKS, MUNICIPALITY OF PORT ARTHUR.

Plant installed, 1903-1904.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, 433,799,700 gals.
Total daily capacity of pumps, 1,728,000 gals.
Average daily consumption, 118,850.
Cost of production for 1,000 gallons, .0879.
Population of municipality, 15,000

Gross earnings:		
From sale of water		
By meter		
By contract	$24,212 51	
From sale of meters		
From permits tapping mains	1,005 11	
From other sources, fire hydrants	6,853 14	
Total income	32,070 76	
Less operating expenses	38,135 21	
Deficit for year		$6,064 45

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$870 00	
Office supplies and expenses	600 00	
Insurance		
Legal expenses and damages		
Other expenses		
Wages	8,028 84	$9,498 84
Supplies—Fuel		
Power purchased		$2,500 00
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals		$26,136 37
Interest on bonds or loans		
Total cost of production		$38,135 21

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$448,953 00
Cost of real estate and buildings		
Other assets		
Total assets		$448,953 00
Debentures or bonds current		$629,275 00
Bank overdraft		
Municipal overdraft		
Total liabilities		$629,275 00

WATER WORKS, MUNICIPALITY OF PORT COLBORNE.

Plant installed, 1898.
Gravity or pumping system. Pumping into iron stand pipe.
Number of gallons pumped per year, 36,500,000.
Total daily capacity of pumps, 100,000 gals.
Average daily consumption. Not given.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 1,700.

Gross earnings:		
From sale of water		$2,101 45
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$2,101 45
Less operating expenses		1,323 74
Surplus or deficiency for year		$777 71

WATER WORKS, MUNICIPALITY OF PORT COLBORNE.—*Continued.*

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		$750 00
Office supplies and expenses	.....	
Insurance	.....	
Legal expenses and damages	.....	
Other expenses	.....	
Wages	.....	
Supplies—Fuel	.....	
Pumping station supplies	.....	
Filtration supplies.	.....	
Other supplies	.....	
For repairs and renewals	.....	
Interest on bonds or loans	.....	$573 74
Total cost of production..		$1,323 74

Cost of pumping, $62.50 per month.

Capital Expenditure.

Reservoirs	$1,500 00
Cost of mains	
Cost of service pipes	
Cost of service pipes	7,000
Cost of real estate and buildings	2,800 00
Other assets	20,700 00
Total assets	$32,000 00
Debentures or bonds current..	$18,018 42
Bank overdraft	
Municipal overdraft	
Total liabilities	$18,018 42

WATER WORKS, MUNICIPALITY OF PORT ELGIN.

Plant installed, 1906-1907.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given
Cost of production for 1,000 gallons. Not given.
Population of municipality, 1,230.

Gross earnings:		
From sale of water		
By meter		$600 00
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$600 00
Less operating expenses		2,876 62
Deficiency for year		$2,276 62

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$60 00	
Office supplies and expenses	.....	
Insurance, collection	18 00	
Legal expenses and damages	.....	
Other expenses	.....	
Wages	300 00	$378 00
Supplies—Fuel	$385 24	
Pumping station supplies	27 51	
Filtration supplies.	.....	
Other supplies	168 69	$581 44
For repairs and renewals	152 03	
Interest on bonds or loans	1,765 15	1,917 18
Total cost of production..		$2,876 62

Capital Expenditure.

Reservoirs	$42,000 00
Cost of mains	
Cost of service pipes	
Cost of hydrants	
Cost of real estate and buildings	
Other assets	
Total assets	$42,000 00
Debentures or bonds current..	$37,421 72
Bank overdraft	
Municipal overdraft	
Total liabilities	$37,421 72

WATER WORKS, MUNICIPALITY OF PORT HOPE.

Plant installed, 1896.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, 50,981,400.
Total daily capacity of pumps, 2,448,000.
Average daily consumption, 140,000.
Cost of production for 1,000 gallons, .09.5.
Population of municipality, 5,000.

WATER WORKS, MUNICIPALITY OF PORT HOPE.—*Continued.*

Gross earnings:		
From sale of water		
By meter		$5,309 66
By contract		2,632 81
From sale of meters		
From permits tapping mains		$549 85
From other sources		42 26
Total income		$8,534 58
Less operating expenses		4,830 64
Surplus for year		$3,703 94
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$1,704 77	
Office supplies and expenses	105 22	
Insurance	122 00	
Legal expenses and damages		
Other expenses	141 49	
Wages		$2,073 48
Supplies—Fuel	$1,448 20	
Pumping station supplies	75 56	$1,523 76
Filtration supplies.		
Other supplies		
For repairs and renewals	920 50	
Interest on bonds or loans	312 90	1,233 40
Total cost of production		$4,830 64

Capital Expenditure.

Reservoirs	$5,517 05
Conduits	1,792 00
Cost of service pipes / Cost of mains	26,767 08
Cost of hydrants	3,237 74
Cost of meters	4,550 98
Cost of real estate and buildings	1,720 89
Pumps and meters	8,569 46
Other assets, original outlay	57,449 19
Total assets	$109,604 39
Debentures or bonds current	$40,974 99
Bank overdraft	
Municipal overdraft	
Total liabilities	$40,974 99

WATER WORKS, MUNICIPALITY OF PORT PERRY.

Plant installed, 1903.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, No data.
Total daily capacity of pumps. No data.
Average daily consumption. No data.
Cost of production for 1,000 gallons No data.
Population of municipality, 1,200.

Capital Expenditure.

Reservoirs, tank	$1,500 00
Cost of mains and hydrants	2,000 00
Cost of service pipes, pump	1,200 00
Cost of hydrants	
Cost of real estate and buildings, $800; steam plant, $500	1,300 00
Other assets	
Total assets	$6,000 00
Debentures or bonds current.	$13,746 19
Less proportion of debentures issued to cover cost of Electric Light plant	*10,996 95
Municipal overdraft	
Total liabilities	$2,749 24

* This sum includes Debentures issued for Electric Light.

Gross earnings: From sale of water / By meter / By contract	$750 00
From sale of meters	
From permits tapping mains	
From other sources	
Total income	$750 00
Less operating expenses	
Surplus or deficiency for year	
Operating expenses:	
Salaries of officers, superintendents, clerks, etc.	
Office supplies and expenses	
Insurance	
Legal expenses and damages	
Other expenses	
Wages	
Supplies—Fuel	
Pumping station supplies	
Filtration supplies.	
Other supplies	
For repairs and renewals	
Interest on bonds or loans	
Total cost of production	

Not used for domestic purposes. No revenue. Cost paid out of general revenue.

Water Works, Municipality of Prescott.

Plant installed, 1900.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 51,346,153.
Total daily capacity of pumps, 1,440,000 gals.
Average daily consumption, 140,000 gals.
Cost of production for 1,000 gallons, .14.
Population of municipality, 3,000.

Gross earnings:		
From sale of water		
By meter	$4,350 25	
By contract	614 75	
From sale of meters		
From permits tapping mains		
From other sources	3,425 42	
Total income		$8,390 42
Less operating expenses		7,214 04
Surplus or deficiency for year		$1,176 38
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$495 00	
Office supplies and expenses	275 20	
Insurance	150 45	
Legal expenses and damages		
Other expenses	457 25	
Wages	528 00	
		$1,905 90
Supplies—Fuel	$999 88	
Pumping station supplies	91 14	
Filtration supplies	465 40	$1,556 44
Other supplies		200 00
For repairs and renewals	520 30	
Interest on bonds or loans	2,096 77	
Debenture paid	934 63	3,031 40 3,551 70
Total cost of production.		$7,214 04

Capital Expenditure.

Reservoirs	
Cost of mains	39,320 38
Cost of service pipes	6,382 69
Cost of hydrants	2,730 00
Cost of real estate and buildings	4,050 00
Other assets	17,662 65
Total assets	$70,145 72
Debentures or bonds current	$51,484 59
Bank overdraft	
Other liabilities	240 00
Total liabilities	$51,724 59

Water Works, Municipality of Preston.

Plant installed, 1906-1907.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 3,700.

Gross earnings:		
From sale of water		
By meter		$3,783 85
By contract		
From street sprinkling		300 00
From permits tapping mains		
From hydrants		2,840 06
Total income		$6,923 91
Less operating expenses		9,506 51
Deficiency for year		$2,582 60
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$300 00	
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses	236 14	
Wages		
		$536 14
Supplies—Fuel		
Wages, pumping		$2,200 00
Pumping station supplies		
Filtration supplies.		
Debenture paid		2,086 24
For repairs and renewals		414 03
Interest on bonds or loans		4,270 10
Total cost of production.		$9,506 51

Capital Expenditure.

Reservoirs	
Cost of mains	
Cost of service pipes	
Cost of hydrants	$89,235 68
Cost of real estate and buildings	
Other assets	
Total assets	$89,235 68
Debentures or bonds current	$84,529 33
Bank overdraft	14,356 71
Municipal overdraft	
Total liabilities	$98,886 04

Water Works, Municipality of Renfrew.

Plant installed, 1897-1898.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, No record kept.
Total daily capacity of pumps. No record.
Average daily consumption. No record.
Cost of production for 1,000 gallons, No record.
Population of municipality, 3,847.

Gross earnings:		
From sale of water	$11,944 00	
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income	$11,944 00	
Less operating expenses	7,459 94	
Surplus for year	$4,484 06	
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses		
Wages	$1,527 95	$1,527 95
Supplies—Fuel and power	$1,995 20	
Pumping station supplies	203 90	
Filtration supplies		
Other supplies	293 00	
For repairs and renewals	118 89	
Interest on bonds or loans	3,321 00	5,931 99
Total cost fo production		$7,459 94

Capital Expenditure.

Reservoirs, boilers and tanks	$2,801 00
Cost of filters and beds	7,000 00
Cost of pumping equipment	3,261 00
Cost of hydrants	3,600 00
Cost of real estate and buildings	4,994 00
Other assets: Electric pump, $3,000	64,952 00
Total assets	$86,308 00
Debentures or bonds current	$52,110 00
Bank overdraft	11,393 41
Municipal overdraft	
Total liabilities	$63,503 41

Water Works, Municipality of Seaforth.

Plant installed, 1879.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 2,142.

Gross earnings:		
From sale of water	$824 47	
By meter, fire protection	650 00	
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income	$1,474 47	
Less operating expenses	1,436 09	
Surplus for year	$38 38	
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses		
Wages	$429 28	$429 28
Supplies—Fuel	$645 55	
Pumping station supplies		
Filtration supplies	70 53	$716 08
Other supplies		
For repairs and renewals		
Interest on bonds or loans		$290 73
Total cost of production		$1,436 09

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants, Cost of real estate and buildings, Other assets	$14,500 00
Total assets	$14,500 00
Debentures or bonds current	$3,500 00
Bank overdraft	
Municipal overdraft	
Total liabilities	$3,500 00

Water Works, Municipality of Shelburne.

Plant installed, 1889.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not given.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 1,113.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$32,000 00
Cost of real estate and buildings		
Other assets		
Total assets		$32,000 00
Debentures or bonds current		
Bank overdraft		
Municipal overdraft		
Total liabilities		
Gross earnings:		
From sale of water		
By meter		
By contract		$1,200 00
From sale of meters		
From permits tapping mains		
From other sources		25 00
Total income		$1,225 00
Less operating expenses		975 00
Surplus for year		$250 00
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses		
Wages	$150 00	
Supplies—Fuel	$325 00	
Pumping station supplies		
Filtration supplies	50 00	
Other supplies	50 00	
For repairs and renewals	400 00	$975 00
Interest on bonds or loans		
Total cost of production		$975 00

Water Works, Municipality of Simcoe.

Plant installed, 1907.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 32,775,700.
Total daily capacity of pumps, 1,440,000 gallons.
Average daily consumption, 89,000 gals
Cost of production for 1,000 gallons, .20.4.
Population of municipality, 3,610.

Gross earnings:		
From sale of water		
By meter and flat rate	$3,023 84	
By contract	2,900 00	
From rent of meters	790 65	
From permits tapping mains		
From other sources		
Total income		$6,714 49
Less operating expenses		6,358 86
Surplus for year		$355 63
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$350 00	
Office supplies and expenses	32 40	
Insurance	30 81	
Legal expenses and damages	45 85	
Other expenses	30 65	
Wages	615 04	$1,104 75
Supplies—Fuel	$242 65	
Pumping station supplies	51 00	
Filtration supplies		
Other supplies	76 50	$370 15
For repairs and renewals	160 84	
Interest on bonds or loans	4,723 12	4,883 96
Total cost of production		$6,358 86

Capital Expenditure.

Reservoirs	$11,868 90
Cost of mains	36,472 73
Cost of service pipes	1,682 56
Cost of hydrants	3,600 00
Cost of real estate and buildings	9,167 00
Other assets, machinery, meters, etc.	16,632 06
Total assets	$79,423 25
Debentures or bonds current.	$71,673 72
Bank overdraft	998 49
Municipal overdraft	
Total liabilities	$72,672 21

Water Works, Municipality of Smith's Falls.

Plant installed, 1900.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 750,000 daily.
Total daily capacity of pumps, 2,500,000 gals.
Average daily consumption, 750,000.
Cost of production for 1,000 gallons, .0375.
Population of municipality, 6,142.

Gross earnings:		
From sale of water ..... By meter ..... By contract		$13,317 69
From sale of meters		
From permits tapping mains		396 93
From other sources		
Total income		$13,714 62
Less operating expenses		$10,829 25
Surplus		$2,885 37
Operating expenses:		
Salaries of officers, superintendents, clerks, etc. ...	$1,090 08	
Office supplies and expenses	176 94	
Insurance	49 20	
Legal expenses and damages	3 00	
Other expenses		
Wages	1,520 04	
		$2,839 26
Supplies—Fuel		$1,737 84
Pumping station supplies...		363 93
Filtration supplies		
Other supplies		392 12
For repairs and renewals		5,496 10
Interest on bonds or loans ..		5,333 15
Total cost of production..		$10,829 25

Capital Expenditure.

Reservoirs ..... Cost of mains ..... Cost of service pipes ..... Cost of hydrants ..... Cost of real estate and buildings ..... Other assets	$162,000 00
Total assets (estimated)..	$162,000 00
Debentures or bonds current (estimated)	$137,402 56
Bank overdraft	
Municipal overdraft	
Total liabilities	$137,402 56

Water Works, Municipality of Southampton.

Plant installed, 1901.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 27,000,000.
Total daily capacity of pumps, 1,000,000 gals.
Average daily consumption, 74,000.
Cost of production for 1,000 gallons, .0958.
Population of municipality, 1,704.

Gross earnings:		
From sale of water.		
By meter	$81 23	
By contract	2,087 73	
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$2,168 96
Less operating expenses		2,588 96
Deficiency for year		$420 00
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$450 00	
Office supplies and expenses	15 00	
Insurance	20 00	
Legal expenses and damages		
Other expenses		
Wages		
		$485 00
Supplies—Fuel		745 09
Pumping station supplies ..		
Filtration supplies		34 83
Other supplies		
For repairs and renewals		96 45
Interest on bonds or loans ..		1,227 59
Total cost of production..		$2,588 96

Capital Expenditure.

Reservoirs ..... Cost of mains ..... Cost of service pipes ..... Cost of hydrants ..... Cost of real estate and buildings ..... Other assets	
Total assets	$35,337 76
Debentures or bonds current..	$29,445 57
Bank overdraft	
Municipal overdraft	
Total liabilities	$29,445 57

Water Works, Municipality of Stayner.

Plant installed, 1898.
Gravity or pumping system. Gravity.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps. Not give.
Average daily consumption, 36,500,000.
Cost of production for 1,000 gallons. Not given.
Population of municipality, 1,000.

Gross earnings:		
From sale of water, G. T. Ry.	$250 00	
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources	770 00	
Total income	$1,020 00	
Less operating expenses	1,554 30	
Deficiency for year	$534 30	
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$40 00	$40 00
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses		
Wages		
Supplies—Fuel		
Pumping station supplies		
Filtration supplies..		
Other supplies		
For repairs and renewals		
Interest on bonds or loans, $729.15, $658.77	$126 38	
		$1,514 30
Total cost of production..		$1,554 30

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		$25,000 00
Cost of hydrants		
Cost of real estate and buildings		
Other assets		
Total assets		$25,000 00
Debentures or bonds current..		$17,570 12
Bank overdraft		
Municipal overdraft		
Total liabilities		$17,570 12

Water Works, Municipality of St. Catharines.

Plant installed, 1878-1879.
Gravity or pumping system. Gravity.
Number of gallons pumped per year, 815,000,000.
Total daily capacity of pumps. None.
Average daily consumption, 2,230,000 gals.
Cost of production for 1,000 gallons, .0249.
Population of municipality, 13,200.

Gross earnings:		
From sale of water.		
By meter	$7,820 36	
By contract	24,067 77	
From hydrants	5,860 00	
From permits tapping mains		
From other sources	1,218 00	
Total income		$38,966 13
Less operating expenses		20,337 63
Surplus or deficiency for year		$18,628 50
Operating expenses:		
Salaries of officers, superintendents, clerks, etc. ...	$2,700 00	
Office supplies and expenses	162 57	
Insurance	29 50	
Legal expenses and damages		
Other expenses, reservoirs	589 74	
Wages	1,160 09	
		$4,641 90
Supplies—Fuel		
Pumping station supplies		
Filtration supplies..		
Other supplies		
For repairs and renewals, main, etc...	1,895 73	
Interest on bonds or loans	13,800 00	
		$15,695 73
Total cost of production..		$20,337 63

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		$549,398 02
Cost of hydrants		
Cost of real estate and buildings		
Other assets		
Cash		13,402 21
Total assets		$562,800 23

WATER WORKS, MUNICIPALITY OF ST. CATHARINES.—*Continued.*

Debentures or bonds current.	$345,000 00	fund	70,312 76
Bank overdraft		Total liabilities	$274,687 24
Municipal overdraft, sinking			

WATER WORKS, MUNICIPALITY OF ST. MARY'S.

Plant installed, 1899-1900.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 4,000,000 (estimated).
Total daily capacity of pumps, 250,000 daily.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 3,412.

Capital Expenditure.

Reservoirs and wells	$5,935 00	
Cost of mains		
Cost of service pipes	40,459 66	
Cost of hydrants		
Cost of real estate and buildings	3,050 00	
Boilers, etc.	4,740 00	
Other assets	10,435 97	
Total assets		$64,620 63
Debentures or bonds current.	*$86,770 83	
Bank overdraft		
Municipal overdraft		
Total liabilities		$86,770 83

* Inclusive of debentures issued for Electric Lighting and Hydro-Electric power extension.

Gross earnings:

From sale of water	$5,865 35	
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		
Less operating expenses	$3,606 79	
Surplus or deficiency for year		

Operating expenses:

Salaries of officers, superintendents, clerks, etc.	$907 22	
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses	508 64	
Wages, etc.	592 87	
Supplies—Fuel	1,598 06	
		$3,606 79
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals		
Interest on bonds or loans		
Total cost of production.		$3,606 79

WATER WORKS, MUNICIPALITY OF ST. THOMAS.

Plant installed, 1874.
Gravity or pumping system. Pumping.
Number of gallons pumped per year. (1910), 504,322,705.
Total daily capacity of pumps, 9,000,000 gals.
Average daily consumption, 1,380,000.
Cost of production for 1,000 gallons. .056.
Population of municipality, 15,253.

Gross earnings:

From sale of water.		
By meter	$16,561 80	
By contract	20,923 43	
From sale of meters		
From permits tapping mains		
From other sources	252 80	
Total income		$37,738 03
Less operating expenses		28,313 56
Surplus for year		$9,424 47

Operating expenses:

Salaries of officers, superintendents, clerks, etc.	$2,995 08	
Office supplies and expenses	1,061 82	
Insurance	78 75	
Legal expenses and damages		
Other expenses	67 96	
Wages	7,089 53	
		$11,293 14
Supplies—Fuel	$1,205 90	
Pumping station supplies	3,124 67	

WATER WORKS, MUNICIPALITY OF ST. THOMAS.—*Continued.*

Filtration supplies	623 40	
Other supplies	3,395 77	
		$8,349 74
For repairs and renewals		2,600 96
Interest on bonds or loans		6,069 72
Total cost of production		$28,313 56

Capital Expenditure.

Reservoirs	
Cost of mains	
Cost of service pipes	
Cost of hydrants	$289,307 78
Cost of real estate and buildings	
Other assets	
Total assets	$289,307 78
Debentures or bonds current	$141,682 57
Bank overdraft	
Municipal overdraft	
Total liabilities	$141,682 57

WATER WORKS, MUNICIPALITY OF STRATFORD.

Plant installed, 1883.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 248,200,000 gals.
Total daily capacity of pumps, 25,000,000 gals.
Average daily consumption, 68,000 gals.
Cost of production for 1,000 gallons, .06.4.
Population of municipality, 13,000.

Gross earnings:		
From sale of water. By meter		$12,579 82
By contract		12,778 24
From buildings		498 01
From permits tapping mains, sprinkling		670 73
From other sources		1,600 50
Total income		$28,127 30
Less operating expenses		15,859 25
Surplus for year		$12,268 05

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$3,247 95	
Office supplies and expenses	248 28	
Insurance	59 42	
Legal expenses and damages		
Other expenses		
Wages	546 82	
Supplies—Fuel	$2,393 61	
Pumping station supplies		
Filtration supplies	173 63	
Other supplies	400 61	
For repairs and renewals	1,335 98	
Interest on bonds or loans	7,452 95	
Total cost of production		$15,859 25

Capital Expenditure.

Reservoirs, Cost of mains, Cost of service pipes, Cost of hydrants	$216,893 20
Cost of real estate and buildings, Other assets	
Total assets	$216,893 20
Debentures or bonds current	$179,816 00
Bank overdraft	1,404 13
Municipal overdraft	1,080 00
Total liabilities	$182,300 13
Deduct sinking fund	15,347 55
Net debt	$166,952 58

WATER WORKS, MUNICIPALITY OF STOUFFVILLE.

Plant installed, 1897.
Gravity or pumping system. Gravity.
Number of gallons pumped per year, No data.
Total daily capacity of pumps. None.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 1,000.

Gross earnings:	
From sale of water	$773 02
By meter	
By contract	
From sale of meters	
From permits tapping mains	
From other sources	
Total income	$773 02

WATER WORKS, MUNICIPALITY OF STOUFFVILLE.—*Continued.*

Less operating expenses	$885 72	Interest on bonds or loans ..	
Deficiency for year	$112 70	Total cost of production..	$885 72
Operating expenses:		*Capital Expenditure.*	
Salaries of officers, superintendents, clerks, etc.		Reservoirs	
Office supplies, expenses and services	$153 60 $153 60	Cost of mains	
Insurance		Cost of service pipes	
Legal expenses and damages		Cost of hydrants	$25,000 00
Other expenses		Cost of real estate and buildings	
Wages		Other assets	
Supplies—Fuel		Total assets	$25,000 00
Pumping station supplies		Debentures or bonds current..	$17,589 00
Filtration supplies..		Bank overdraft	
Other supplies		Municipal overdraft	
For repairs and renewals	$732 12	Total liabilities	$17,589 00

WATER WORKS, MUNICIPALITY OF STURGEON FALLS.

Plant installed, 1903.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 36,047,400.
Total daily capacity of pumps. Not given.
Average daily consumption, 98,750 gals.
Cost of production for 1,000 gallons, .0647.
Population of municipality, 2,070.

Gross earnings:		Supplies—Fuel	
From sale of water		Pumping station supplies	
By meter	$3,972 76	Filtration supplies	
By contract		Other supplies	
From sale of meters		For repairs and renewals	
From permits tapping mains		Interest on bonds or loans ...	$1,301 06
From other sources		Total cost of production ..	$2,333 15
Total income	$3,972 76	*Capital Expenditure.*	
Less operating expenses	2,333 15	Reservoirs	
Surplus for year	$1,639 61	Cost of mains	
Operating expenses:		Cost of service pipes	
Salaries of officers, superintendents, clerks, etc.		Cost of hydrants	$44,375 92
Office supplies and expenses	$1,032 09	Cost of real estate and buildings	
Insurance		Other assets	
Legal expenses and damages		Total assets	$44,375 92
Other expenses		Debentures or bonds current..	$15,208 17
Wages		Bank overdraft	
		Municipal overdraft	
		Total liabilities	$15,208 17

Water Works, Municipality of Thessalon.

Plant installed, Nov. 8, 1901.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, No record.
Total daily capacity of pumps, 1,872,000 gals.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 1,758.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$26,000 00
Cost of real estate and buildings		
Other assets		
Total assets		$26,000 00
Debentures or bonds current	$17,166 06	
Bank overdraft		
Municipal overdraft		
Total liabilities		$17,166 06

Gross earnings:		
From sale of water	$2,736 34	
By meter, fire protection	800 00	
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$3,536 34
Less operating expenses		$2,783 60
Surplus for year		$752 74

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance		
Legal expenses and damages		
Other expenses, collecting	$100 00	
Wages	565 00	$665 00
Supplies—Fuel		$997 00
Pumping station supplies		237 81
Filtration supplies		
Other supplies		
For repairs and renewals		
Interest on bonds or loans		883 79
Total cost of production		$2,783 60

Water Works, Municipality of Teeswater.

Plant installed, 1889.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, Not given.
Total daily capacity of pumps, 72,000 gals.
Average daily consumption. Not given.
Cost of production for 1,000 gallons, Not given.
Population of municipality, 819.

Capital Expenditure.

Reservoirs		
Cost of mains		
Cost of service pipes		
Cost of hydrants		$15,000 00
Cost of real estate and buildings		
Other assets		
Total assets		$15,000 00
Debentures or bonds current	$1,268 08	
Bank overdraft		
Municipal overdraft		
Total liabilities		$1,268 08

Gross earnings:		
From sale of water		
By meter		No revenue.
By contract		Plant is operated for fire protection only.
From sale of meters		
From permits tapping mains		
From other sources		
Total income		
Less operating expenses		
Surplus or deficiency for year		

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance	$26 14	
Legal expenses and damages		
Other expenses		
Wages		
Supplies—Fuel		
Pumping station supplies		

WATER WORKS, MUNICIPALITY OF TEESWATER.—*Continued.*

Filtration supplies		
Other supplies		
For repairs and renewals	$47 82	
Interest on bonds or loans	63 40	
Total cost of production..		$137 36

WATER WORKS, MUNICIPALITY OF TILBURY.

Plant installed, 1888.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 23,093,550 gals.
Total daily capacity of pumps. Pumped by Michigan Ry. Co.
Average daily consumption, 63,270 gals.
Cost of production for 1,000 gallons, .043.
Population of municipality, 1,406.

Gross earnings: From sale of water By meter ..... By contract	$805 00	
From sale of meters		
From permits tapping mains		
From other sources.	$2 50	
Total income		$807 50
Less operating expenses		995 98
Deficiency for year		$188 48

Operating expenses:		
Salaries of officers, superintendents, clerks, etc.		
Office supplies and expenses		
Insurance	$31 28	
Legal expenses and damages		
Other expenses		
Wages, pd. Michigan Ry. for pumping..	404 83	
		$436 11
Supplies—Fuel		
Pumping station supplies		
Filtration supplies		
Other supplies		
For repairs and renewals	285 32	
Interest on bonds or loans	274 35	
		$559 67
Total cost of production..		$995 78

Capital Expenditure.

Reservoirs	$2,920 00
Cost of mains	14,459 24
Cost of service pipes	2,094 41
Cost of hydrants	1,075 00
Cost of real estate and buildings	50 00
Other assets	1 200 00
Total assets	$21,798 65
Debentures or bonds current..	$5,000 00
Bank overdraft	
Municipal overdraft	
Total liabilities	$5,000 00

WATER WORKS, MUNICIPALITY OF TORONTO.

Plant installed, 1872.
Gravity or pumping system. Pumping.
Number of gallons pumped per year, 12,777,315,692.
Total daily capacity of pumps, 68,000,000 gallons.
Average daily consumption, 35,000,000 gallons.
Cost of production for 1,000 gallons, .057.
Population of municipality, 400,000.

Capital Expenditure.

Reservoirs ..... Cost of mains ..... Cost of service pipes .... Cost of hydrants ..... Cost of real estate and buildings ..... Other assets	$9,950,387 00
Debentures or bonds current	$7,334,432 00

WATER WORKS, MUNICIPALITY OF TORONTO.—*Continued.*

Bank overdraft			
Municipal overdraft			
Total liabilities		$7,334,432 00	
Sinking fund		1,173,626 89	
Net debt		$6,160,805 11	
Gross earnings:			
From sale of water			
By meter	$262,994 04		
By contract	384,238 51		
From City	101,752 73		
From permits tapping mains			
From other sources	2,542 98		
Total income		$751,528 26	
Less operating expenses		736,551.73	
Surplus for year		$14,976 53	
Operating expenses:			
Salaries of officers, superintendents, clerks, etc.	$44,718 73		
Office supplies and expenses	3,087 07		
Insurance			
Legal expenses and damages			
Other expenses	560 00		
Wages	181,933 72		
		$230,269 52	
Supplies—Fuel	$80,480 29		
Pumping station supplies	12,591 25		
Filtration supplies	28,781 11		
Other supplies			
		$121,852 65	
For repairs and renewals		10,147 80	
Interest on bonds or loans		374,281 76	
Total cost of production		$736,551 73	

WATER WORKS, MUNICIPALITY OF WALKERTON.

Plant installed, 1891.			
Gravity or pumping system. Gravity and pumping.			
Number of gallons pumped per year, Not given.			
Total daily capacity of pumps, 1,944,000 gals.			
Average daily consumption. Not given.			
Cost of production for 1,000 gallons, Not given.			
Population of municipality, 3,090.			
Gross earnings:			
From sale of water			
By meter		$3,536 27	
By contract			
From sale of meters			
From permits tapping mains			
From other sources			
Total income		$3,536 27	
Less operating expenses		2,538 44	
Surplus for year		$997 83	
Operating expenses:			
Salaries of officers, superintendents, clerks, etc.	$300 00		
Office supplies and expenses			
Insurance			
Legal expenses and damages			
Other expenses			
Wages	$19 25		
		$319 25	
Supplies—Fuel	$350 16		
Pumping station supplies	152 20	502 36	
Filtration supplies			
Other supplies		$604 31	
For repairs and renewals		1,112 52	
Interest on bonds or loans			
Total cost of production		$2,538 44	
Capital Expenditure.			
Reservoirs and tanks.	$2,841 90		
Cost of mains, distributing tanks			
Cost of original contracts	$36,241 72		
Cost of hydrants			
Cost of real estate and buildings	5,143 51		
Other assets			
Total assets		$44,227 13	
Debentures or bonds current		$22,263 42	
Bank overdraft			
Municipal overdraft			
Total liabilities		$22,263 42	

WATER WORKS, MUNICIPALITY OF WATERLOO.

Plant installed, 1899.	Total daily capacity of pumps, 3,500,000.
Gravity or pumping system. Pumping.	Average daily consumption, 369,600 gals.
Number of gallons pumped per year, 134,912,000 gals.	Cost of production for 1,000 gallons, .06.

WATER WORKS, MUNICIPALITY OF WATERLOO.—*Continued.*

Population of municipality, 4,700.

Gross earnings:		
From sale of water		
By meter	$5,502 20	
By contract	5,308 83	
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$10,811 03
Less operating expenses		8,092 41
Surplus for year		$2,718 62
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$950 00	
Office supplies and expenses	73 98	
Insurance	160 00	
Legal expenses and damages		
Other expenses	124 15	
Wages	914 02	
		$2,222 15
Supplies—Fuel	$2,316 00	
Pumping station supplies	169 11	
Filtration supplies	93 65	
Other supplies		
		$2,578 76
For repairs and renewals	$660 56	
Interest on bonds or loans	2,630 94	
		$3,291 50
Total cost of production		$8,092 41

Capital Expenditure.

Reservoirs and tanks	$14,002 86
Cost of mains and services	47,162 00
Cost of wells	2,009 72
Cost of hydrants and meters	8,483 74
Cost of real estate and buildings	12,256 23
Other assets	7,436 78
Total assets	$91,251 33
Debentures or bonds current	$66,697 48
Bank overdraft	
Municipal overdraft	
Total liabilities	$66,697 48

WATER WORKS, MUNICIPALITY OF WINGHAM.

Plant installed, 1879.
Gravity or pumping system. Pumping into sand pipe.
Number of gallons pumped per year, No data.
Total daily capacity of pumps. No data.
Average daily consumption. No data.
Cost of production for 1,000 gallons, No data.
Population of municipality, 2,400.

Capital Expenditure.

Reservoirs	$5,925 00
Cost of mains	17,900 00
Cost of service pipes	7,400 00
Cost of hydrants	
Cost of real estate and buildings	8,100 00
Other assets	1,257 07
Total assets	$40,582 07
Debentures or bonds current	$28,460 89
Bank overdraft	
Municipal overdraft	
Total liabilities	$28,460 89

Gross earnings (derived from sale of water for closets, stables, engines, etc., but not used for drinking purposes):

From sale of water		
By meter		
By contract		
From sale of meters		
From permits tapping mains		
From other sources		
Total income		$2,631 43
Less operating expenses		$1,884 51
Surplus for year		$746 92
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$225 00	
Office supplies and expenses	19 79	
Insurance		
Legal expenses and damages	69 80	
Other expenses		
Wages		
		$314 59
Supplies—Fuel		
Pumping station supplies		
Filtration supplies		
Other supplies		185 26
For repairs and renewals		113 58
Interest on bonds or loans		1,271 08
Total cost of production		$1,884 51

Water Works, Municipality of Woodstock.

Plant installed by private Company, 1880; purchased by Town, 1885.
Gravity or pumping system. Pumping system.
Number of gallons pumped per year, 529,044,790.
Total daily capacity of pumps, 6,000,000 gals.
Average daily consumption, 1,449,438 gals.
Cost of production for 1,000 gallons. .0366.
Population of municipality, 9,500.

Capital Expenditure.

Reservoirs		
Cost of mains	$76,322 81	
Cost of service pipes		
Cost of hydrants and meters	5,786 08	
Cost of real estate and buildings	8,378 36	
Land	4,235 00	
Other assets	119,511 61	
Total assets		$214,233 86
Debentures or bonds current	$193,216 49	
Sinking fund	53,541 63	
Municipal overdraft		
Total liabilities (net)		$139,674 86

Gross earnings:		
From sale of water	$4,039 68	
By meter	17,361 89	
By contract		
From sale of meters		
From permits tapping mains		
From other sources.	6,948 55	
Total income		$28,350 12
Less operating expenses		19,349 88
Surplus for year		$9,000 24
Operating expenses:		
Salaries of officers, superintendents, clerks, etc.	$759 15	
Office supplies and expenses	149 02	
Insurance	64 55	
Legal expenses and damages		
Other expenses	6 00	
Wages	2,499 61	
		$3,478 33
Supplies—Fuel		$4,855 17
Pumping station supplies		1,347 64
Filtration supplies		
Other supplies		1,353 56
For repairs and renewals		
Interest on bonds or loans		8,315 18
Total cost of production		$19,349 88

PUBLIC UTILITIES—WATER WORKS.

Tabulated Statement Compiled from Returns of Municipalities for Year Ending 31st December, 1910.

Municipality.	Total Investment.	Debenture and other Debts.	Sinking Fund.	Net Debt.	Total Income.	Total Outlay.	Surplus.	Deficit.	Cost per 1,000 gals.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c	$ c.	
Alexandria									
Amherstburg									
Arnprior	78,248 77	46,202 10		46,202 10	5,932 62	9,627 93		3,695 31	08.02
Aylmer	100,000 00	63,724 28		63,724 28	3,564 41	2,595 55	968 86		
Barrie	128,111 57	84,876 06		84,876 06	13,485 86	10,201 95	3,283 91		14.3
Beamsville									
Belleville	314,918 17	218,843 79	45,745 27	173,098 52	27,382 05	20,704 35	6,677 70		04.2
Berlin	244,528 44	90,165 56		90,165 56	33,544 60	16,083 68	17,460 92		05.
Beeton									
Bracebridge	46,879 35	34,217 82		34,217 82	4,591 75	2,812 41	1,779 34		09.17
Brampton	96,983 32				6,023 21	1,752 45	4,270 76		
Brockville	265,642 88	143,312 97	77,252 35	66,060 62	34,599 68	32,192 76	2,406 92		03.2
Bridgeburg	39,032 37	49,039 84		49,039 84	3,500 00	5,568 84		2,068 84	
Brantford	508,701 56	508,701 56	152,063 50	356,638 06	57,088 56	36,170 05	20,918 51		03.76
Campbellville									
Chatham									
Collingwood	74,496 66	43,891 94		43,891 94	14,428 15	12,556 48	1,871 67		05.1
Cornwall	139,746 58	101,855 21		101,855 21	15,061 94	8,663 93	6,398 01		01.7
Creemore	22,500 00	30,417 00		30,417 00	600 00	1,276 70		676 70	
Chapleau									
Deseronto	38,000 00	23,590 00		23,590 00	1,308 39	7,338 53		6,030 14	
Dundas	65,474 62	45,571 36		45,571 36	2,917 40	3,402 82		485 42	28.8
Dunnville									
Exeter	21,400 00	20,636 02		20,636 02					
Essex	33,000 00	17,667 59		17,667 59	2,703 06	4,086 39		1,383 33	15.1
Fenelon Falls									
Fort Frances	75,438 43	64,000 00		64,000 00	4,497 54	5,074 45		576 91	32.7
Fort William	895,198 59	802,930 70		802,930 70	55,460 36	65,522 98		10,062 62	08.5
Galt	211,967 83	186,853 43	78,829 02	108,024 41	30,150 94	21,433 13	8,717 81		06.67
Gananoque									
Georgetown	43,700 00	31,000 00		31,000 00	3,046 02	1,815 00	1,231 02		
Goderich									
Grimsby									
Guelph	331,358 39	222,734 00		222,734 00	29,568 97	22,187 62	7,381 35		05.08
Gravenhurst	20,296 51	20,422 45	364 90	20,057 55	1,389 77	3,085 02		1,695 25	17.
Hamilton	2,573,410 36	1,457,423 25	176,934 34	1,280,489 25	259,850 43	129,218 09	130,632 34		04.81

PUBLIC UTILITIES—WATER WORKS.—*Continued.*

Tabulated Statement Compiled from Returns of Municipalities for Year Ending 31st December, 1910.

Municipality.	Total Investment.	Debenture and Other Debts.	Sinking Fund.	Net Debt.	Total Income.	Total Outlay.	Surplus.	Deficit.	Cost per 1,000 galls.
	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
Hanover	32,936 53	31,911 53	.....	31,911 53	1,685 49	3,080 39	.....	1,394 90	.....
Hawkesbury	120,000 00	62,191 05	.....	62,191 05	5,391 80	5,264 69	127 11	.....	05.4
Huntsvillle	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iroquois	40,099 87	64,354 13	.....	64,354 13	1,245 47	877 24	368 23	.....	.....
Kenora	207,128 23	168,266 99	.....	168,266 99	16,589 22	15,191 27	1,397 95	.....	.....
Kincardine	47,325 82	27,854 22	.....	27,854 22	5,719 46	4,143 23	1,576 23	.....	.....
Kingsville	32,000 00	18,439 57	.....	18,439 57	1,970 22	2,897 20	.....	926 98	.....
Kingston	326,077 05	206,172 67	.....	206,172 67	40,563 50	26,169 30	14,394 20	.....	03.07
Leamington	.....	.....	.....	.....	.....	.....	.....	.....	.....
Lindsay	122,116 66	96,081 84	.....	96,081 84	15,884 58	9,828 09	6,056 49	.....	.....
Listowel	46,579 31	34,664 53	.....	34,664 53	5,804 89	4,636 49	1,168 40	.....	.....
London	1,087,534 35	1,087,534 35	.....	1,087,534 35	122,383 17	52,377 99	70,005 18	.....	03.8
Markham	.....	.....	.....	.....	.....	.....	.....	.....	.....
Merritton	86,723 52	24,704 09	.....	24,704 09	5,362 48	5,041 77	320 71	.....	.....
Milton	30,000 00	9,171 00	.....	9,171 00	1,830 00	925 49	904 51	.....	.....
Mitchell	.....	.....	.....	.....	.....	.....	.....	.....	.....
Morrisburg	25,000 00	20,000 00	.....	20,000 00	3,256 70	2,887 14	369 56	.....	.....
Mount Forest	34,500 00	26,400 00	.....	26,400 00	4,056 20	7,055 34	.....	2,999 14	.....
Midland	93,445 48	66,929 71	.....	66,929 71	10,681 52	8,062 36	2,619 16	.....	.....
New Liskeard	.....	.....	.....	.....	.....	.....	.....	.....	.....
Newmarket	53,909 85	15,497 18	.....	15,497 18	2,845 23	3,303 45	.....	458 22	.....
Niagara	37,630 46	15,045 86	.....	15,045 86	3,024 24	2,577 23	447 01	.....	.....
Niagara Falls	220,943 28	108,008 06	.....	108,008 06	27,243 84	19,554 88	7,688 96	.....	02.4
North Bay	135,585 26	73,738 68	.....	73,738 68	18,345 67	12,841 82	5,503 85	.....	.....
Orangeville	52,194 56	29,669 27	.....	29,669 27	3,251 32	2,626 79	624 53	.....	.....
Orillia	.....	.....	.....	.....	.....	.....	.....	.....	.....
Oshawa	141,285 91	121 685 00	.....	121,685 00	11,048 00	8,307 30	2,740 70	.....	.....
Ottawa	2,538,881 89	981,386 70	268,965 84	712,420 86	216,291 30	215,001 99	1,289 31	.....	03.77
Owen Sound	277,537 38	255,052 44	55,075 12	199,977 32	24,680 60	16,910 32	7,770 28	.....	07.1
Paisley	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paris	84,967 00	11,000 00	.....	11,000 00	6,597 03	6,400 57	196 46	.....	.....
Parry Sound	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penetang	50,500 00	35,700 00	.....	35,700 00	4,977 99	4,575 31	402 68	.....	.....
Peterboro	503,903 72	465,518 26	.....	465,518 26	42,252 24	30,720 11	11,532 13	.....	04.22
Pembroke	.....	.....	.....	.....	.....	.....	.....	.....	.....
Petrolea	190,430 33	110,592 01	.....	110,592 01	16,260 22	15,000 99	1,259 23	.....	05.9
Picton	.....	.....	.....	.....	.....	.....	.....	.....	.....

Port Arthur	448,953 00	629,275 00	.....	629,275 00	32,070 76	38,135 21	.....	6,064 45	08.79
Port Colborne	32,000 00	18,018 42	.....	18,018 42	2,101 45	1,323 74	777 71	.....	.....
Port Elgin	42,000 00	37,421 72	.....	37,421 72	600 00	2,876 62	.....	2,276 62	.....
Port Hope	109,604 39	40,974 99	8,534 58	40,974 99	8,534 58	4,830 64	3,703 94	.....	09.5
Port Perry	6,000 00	2,749 24	.....	2,749 24	750 00	.....	750 00	.....	.....
Prescott	70,145 72	51,724 59	.....	51,724 59	8,390 42	7,214 04	1,176 38	.....	14.
Preston	89,235 68	98,886 04	.....	98,886 04	6,923 91	9,506 51	.....	2,582 60	.....
Renfrew	86,308 00	52,110 00 11,393 41	.....	63,503 41	11,944 00	7,459 94	4,484 06	.....	.....
Sarnia	.....	.....	.....	.....	.....	.....	.....	.....	.....
Seaforth	14,500 00	3,500 00	.....	3,500 00	1,474 47	1,436 09	38 38	.....	.....
Shelburne	32,000 00	.....	.....	.....	1,225 00	975 00	250 00	.....	.....
Simcoe	79,423 25	72,672 21	.....	72,672 21	6,714 49	6,358 86	355 63	.....	20.04
Smith's Falls	162 000 00	137,402 56	.....	137,402 56	13,714 62	10,829 25	2,885 37	.....	03.75
Southampton	35,337 76	29,445 57	.....	29,445 57	2,168 96	2,588 96	.....	420 00	.....
Stayner	25,000 00	17,570 12	.....	17,570 12	1,020 00	1,554 30	.....	534 30	.....
St. Catharines	562,800 23	345,000 00	70,312 76	274,687 24	38,966 13	20,337 63	18,628 50	.....	02.49
St. Thomas	289,307 78	141,682 57	.....	141,682 57	37,738 03	28,313 56	9,424 47	.....	05.6
St. Mary's	64,620 63	.....	.....	.....	5,805 35	.....	5,805 35	.....	.....
Steelton	.....	.....	.....	.....	.....	.....	.....	.....	.....
Stratford	216,893 20	1,823,300 13	15,347 55	166,952 58	28,127 30	15,859 25	12,268 05	.....	06.4
Stouffville	25,000 00	17,589 00	.....	17,589 00	773 02	885 72	.....	112 70	.....
Strathroy	.....	.....	.....	.....	.....	.....	.....	.....	.....
Sturgeon Falls	44,375 92	15,208 17	.....	15,208 17	3,972 76	2,333 15	1,639 61	.....	06.47
Teeswater	15,000 00	1,268 08	.....	1,268 08	.....	137 36	.....	137 36	.....
Thessalon	26,000 00	17,166 06	.....	17,166 06	3,536 34	2,783 60	752 74	.....	.....
Tilbury	21,798 65	5,000 00	.....	5,000 00	807 50	995 98	.....	188 48	.....
Toronto	9,950,387 00	7,334,432 00	1,173,626 89	6,160,805 11	751,528 26	736,551 73	14,976 53	.....	05.7
Walkerton	44,227 13	22,263 42	.....	22,263 42	3,536 27	2,538 44	997 83	.....	.....
Woodstock	214,233 86	193,216 49	53,541 63	139,674 86	28,350 12	19,349 88	9,000 24	.....	03.66
Wingham	40,582 07	28,460 89	.....	28,460 89	2,631 43	1,884 51	746 92	.....	.....
Waterloo	91,251 33	66,697 48	.....	66,697 48	10,811 03	8,092 41	2,718 62	.....	06.
	25,827,256 46	19,690,074 23	2,176,593 75	15,881,015 40	2,244,154 29	1,844,782 24	444,142 32	44,770 27	.....

PUBLIC UTILITIES—WATER WORKS.

Tabulated Statement compiled from Returns of Municipalities for year ending 31st December, 1910.

Municipality.	Population.	Water Production in gallons.	Cost per 1,000 gallons.
Alexandria	.....	.....	.....
Amherstburg	.....	.....	.....
Arnprior	4,395	518,400	08.02
Aylmer	2,099	47,450,000	05.5
Barrie	6,500	71,452,200	14.3
Beamsville	.....	.....	.....
Belleville	10,112	491,268,111	04.2
Berlin	14,600	320,060,500	05.
Beeton	.....	.....	.....
Bracebridge	3,000	30,660,000	09.17
Brampton	3,400	.....	.....
Brantford	23,000	961,188,483	03.76
Bridgeburg	1,674	.....	.....
Brockville	9,500	1,004,176,323	03.2
Campbellville	.....	.....	.....
Chatham	.....	.....	.....
Collingwood	7,200	244,112,000	05.1
Cornwall	6,426	515,000,000	01.07
Creemore	650	.....	.....
Chapleau	.....	.....	.....
Deseronto	1,998	.....	.....
Dundas	4,141	11,790,477	2.88
Dunnville	.....	.....	.....
Exeter	.....	.....	.....
Essex	1,318	.....	.....
Fenelon Falls	.....	.....	.....
Fort Frances	1,700	15,500,000	.....
Fort William	18,000	775,000,000	.....
Galt	9,718	324,403,778	06.67
Gananoque	.....	.....	.....
Georgetown	1,650	.....	.....
Goderich	.....	.....	.....
Grimsby	.....	.....	.....
Guelph	15,000	436,274,000	05.08
Gravenhurst	2,000	18,250,000	17.
Hamilton	75,900	2,686,214,140	04.81
Hanover	2,640	.....	.....
Hawkesbury	4,500	97,700,000	05.4
Huntsville	.....	.....	.....
Iroquois	900	.....	.....
Kenora	7,000	.....	.....
Kincardine	2,631	.....	.....
Kingsville	1,680	.....	.....
Kingston	19,400	.....	03.07
Leamington	.....	.....	.....
Lindsay	7,500	.....	.....
Listowel	2,600	.....	.....
London	47,000	1,550,000,000	03.8
Lucknow	.....	.....	.....
Markham	.....	.....	.....
Merritton	1,560	.....	.....
Milton	1,700	.....	.....
Mitchell	.....	.....	.....
Morrisburg	1,700	.....	.....
Mount Forest	2,300	.....	.....
Midland	4,225	.....	.....
New Liskeard	.....	.....	.....
Newmarket	3,316	.....	.....
Niagara	1,612	.....	.....

PUBLIC UTILITIES—WATER WORKS.—Continued.

Tabulated Statement compiled from Returns of Municipalities for year ending 31st December, 1910.

Municipality.	Population.	Water Production in gallons.	Cost per 1.000 gallons.
Niagara Falls	10,036	814,647,707	02.03
North Bay	7,851	.....	.....
Orangeville	2,321	.....	.....
Orillia	.....	.....	.....
Oshawa	6,318	92,170,508	09.1
Ottawa	86,106	5,704,771,200	03.77
Owen Sound	11,870	236,000,000	07.1
Paisley	.....	.....	.....
Paris	4,278	.....	.....
Parry Sound	.....	.....	.....
Penetang	3,550	.....	.....
Peterboro	18,000	695,164,840	04.22
Pembroke	.....	.....	.....
Petrolea	4,500	253,567,807	05.9
Picton	.....	.....	.....
Port Arthur	15,000	433,799,700	08.79
Port Colborne	1,700	.....	.....
Port Elgin	1,230	.....	.....
Port Hope	5,000	50,981,400	09.5
Port Perry	1,200	.....	.....
Prescott	3,000	51,346,153	14.
Preston	3,700	.....	.....
Renfrew	3,847	.....	.....
Sarnia	.....	.....	.....
Seaforth	2,142	.....	.....
Shelburne	1,113	.....	.....
Simcoe	3,610	32,775,700	20.4
Smiths Falls	6,142	182,500,000	03.75
Southampton	1,704	27,000,000	09.58
Stayner	1,000	.....	.....
St. Catharines	13,200	815,000,000	02.49
St. Thomas	15,253	504,322,705	05.6
St. Mary's	3,4 2	.....	.....
Steelton	.....	.....	.....
Stratford	13,000	248,200,000	06.4
Stouffville	1,000	.....	.....
Strathroy	.....	.....	.....
Sturgeon Falls	2,070	36,047,400	06.47
Teeswater	819	.....	.....
Thessalon	1,758	.....	.....
Tilbury	1,406	23,093,550	04.3
Toronto	400,000	12,777,315,692	05.7
Walkerton	3,090	.....	.....
Woodstock	9,500	529,044,790	03.66
Wingham	2,400	.....	.....
Waterloo	4,700	134,912,000	06.

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